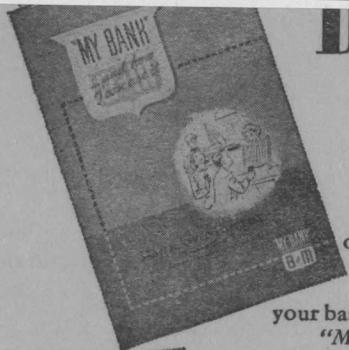




EX LIBRIS UNIVERSITATIS ALBERTÆNSIS



DAN RINGO

...YOU'LL FIND THIS
FREE BOOKLET HELPFUL

Questions on banking have a way of cropping up—inside the classroom and out. For a concise, authoritative booklet containing the answers to your banking queries—send for the B of M's "MY BANK" and *How I Can Use It*.

This illustrated digest tells the story of banking in 24 interesting pages. It contains a great deal of information on general banking procedure and detailed descriptions of the services and facilities of a modern bank—written in everyday language. You'll find it an excellent textbook for classroom discussions on banking and a useful reference work to keep at hand.

To get this booklet—simply fill in the coupon below and mail without delay. With it you will receive the special school supplement, *A Bit About Banking*. If you would like copies for your pupils, just mention the number you require.



BANK OF MONTREAL

Canada's First Bank

WORKING WITH CANADIANS IN EVERY WALK OF LIFE SINCE 1817

SD138

BANK OF MONTREAL,

Public Relations Department, Place d'Armes, Montreal

Please send me, without charge, () copies of your digest on banking, with special school supplement.

NAME _____

ADDRESS _____

CITY _____ PROV. _____

The University of Manitoba

FACULTY OF EDUCATION

RESEARCH BULLETIN No. 18

DECEMBER, 1954

FULL TIME STAFF

Professor N. V. Scarfe	Dean
Professor H. L. Stein	Educational Psychology
Associate Professor J. Katz	Comparative Education
Assistant Professor G. Dolmage	Educational Sociology
Assistant Professor B. R. Whitinger	History of Education
Miss C. Doyle	Dean's Secretary
Miss E. Pokoly	Stenographer

PART TIME LECTURERS

Professor W. M. Hugill	Classics
Assistant Professor M. E. J. Richard	French
Assistant Professor A. J. Fraser	Physical Education
Assistant Professor S. D. Nalevykin	Physical Education
Associate Professor R. Gibson	Music
Assistant Professor R. Nelson	Art
Dean Emeritus D. S. Woods	History of Canadian Education
Dr. E. Boyce	Children's Literature
Mrs. K. Watson	Home Economics
Mrs. Isobel Richard	Speech Training
Dr. J. M. Young	Achievement Testing
Mr. A. D. Thomson	Elementary Education
Mr. H. G. Wedge	Audio-Visual Education

TABLE OF CONTENTS

Editorial	3
The Objectives, Strategy, and Tactics of Teaching, by Dr. J. M. Brown.....	5
A Schoolmaster considers some issues of Secondary Education, by Mr. Ewart Morgan.	16
Science Interests at the Junior High School level, by Dr. A. L. Doucette	35
Attitude of High School Students towards Academic Education, by Dean N. V. Scarfe	52
Evaluating Criticisms of Education, by Dr. Joseph Katz	63
Review of four selected Term Papers, by Dr. H. L. Stein	67
Workshop on Human Relations, by Marjorie Shaw and Margaret Speers....	73
Science Interest among High School Students, by N. W. Wilde	76
A new Faculty member—Professor B. R. Whitinger	80
Elementary Geography Programs in Canada, by H. C. Harper	81
Pupil Achievement in Richard School, by Sister Mary Corinne	81
Teacher Evaluation, by Robert Gray	84
Planning a Functional Junior High School, by J. M. Scurfield	86
Criteria for a grade XII Chemistry Laboratory Manual, by Frank Harder....	87
Some Factors affecting grade XI Chemistry, by C. A. Joyce	89
The Reliability and Item Validity of Departmental Examinations, by I. J. Lehmann	90
Factors affecting success in Teaching Typing, by S. Futch	92
Education I Students 1954-55	93
Evaluation of a Grouping Technique, by Miss M. B. Perfect	94
Faculty Council 1954-55	95
A Provisional Program of Graduate Courses in Education for 1955-56	96

Editorial

In 1953 the Alumni Association of the Faculty of Education decided to sponsor an annual lecture by a distinguished former student. They wished the lecture to be a scholarly and an authoritative contribution to Canadian Educational Thought by an Educator of experience and recognized competence. Each fall on campus the Alumni of the Faculty gather on a particular Saturday afternoon, and there, along with distinguished Educators from all over the province, listen to the considered wisdom of an outstanding colleague.

This year the research bulletin is privileged to publish in one volume the first two of this fine series. Both Dr. Brown and Mr. Morgan are particularly good friends of the Faculty. They are both great thinkers and diligent scholars. They are both held in high esteem throughout the province. We commend their addresses as educational literature of the highest quality.

This volume also brings up to date the abstracts of M.Ed. theses which have been completed within the last two years. In addition there are a few more samples of the work done by teachers in the Education II program as term papers. These are evidence of the wide range of enquiry and effort sponsored by a small but very vigorous faculty.

With this volume we extend our welcome to the May 1955 Conference of the Western Canada Teacher Educators which will be held in Winnipeg. Much of the inspiration for this volume comes from the annual contact with the Teacher Educators of Western Canada.

It is with great pleasure that we congratulate Alberta on the establishment of a Research Council with a research magazine as one of its projects.

HIGNELL PRINTING LIMITED

PRINTERS, LITHOGRAPHERS, ARTISTS, DESIGNERS



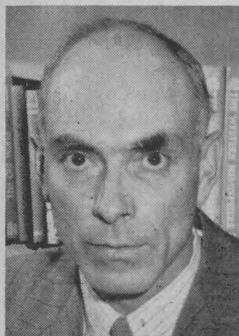
488 Burnell Street,
Winnipeg 10, Manitoba

Telephone
3-7237

"THE OBJECTIVES, STRATEGY AND TACTICS OF TEACHING" *

by DR. J. M. BROWN,

Director of Curriculum, Manitoba Department of Education



Education is a popular, and indeed, controversial subject these days. While some people eulogize teaching as a noble profession, others malign the products of our schools for their ignorance and lack of social demeanour. For three consecutive years the slogan for Education Week has been 'Education is everybody's business'. There are now many thousand members of Home and School Associations in Canada, the largest voluntary association in this country. Government departments, special committees, and various other interested organizations are pooling their resources in an attack on the No. 1 problem

in Canadian education, the shortage of qualified teachers. Never have so many people given thought to education, to the schools, to teachers and to teaching.

The old aphorism "As is the teacher so is the school", now worn almost to threadbareness, is as true today as it was the day Charles Brooks coined it while he campaigned throughout Massachusetts for the establishment of a state Normal School about one hundred years ago. This simple but fundamental popular slogan of a century ago is one which we might well expound with renewed vigour. The schools are important. They deserve and need public support. But it is the teacher who makes the school.

Now, teachers have not always enjoyed so much public attention and recognition as they do today. Apart from ancient India and China, and among the early Jewish people, the history of education has few examples of esteem accorded to teaching as a profession. In ancient India, the Brahmins, or exalted caste, consisted of priests and teachers. In ancient China, teachers were rated second only to public officials. And of course it was from the early Jewish people who respected their teachers quite highly that the greatest teacher of all time arose. There have been, through the centuries, individuals who have achieved great distinction as teachers—Socrates, Plato, Aristotle, Quintilian, Thomas Aquinas, Albertus Magnus, Abelard, Duns Scotus, Vittorino da Feltre, Comenius, Alcuin, Erasmus, Pestalozzi, Herbart, Froebel, Melanchthon, Montessori, Ziller, and others. But these are exceptions. In general, teaching has not a particularly enviable historical record.

As a matter of fact, although the very word 'teacher' is derived from the Greek word 'paidagogus' which in itself refers to the leading of children, it was quite common for both Greeks and Romans to assign their children to slaves for primary instruction. It is from this slave-teacher

*Address given to Faculty of Education Alumni, November, 1953.

or 'paidagogus' that we now have the terms pedagogue and paedagogy, both of which are not infrequently used even today with a measure of contempt.

The Athenians often said of a man who was missing:
"He is either dead or has become a schoolmaster."

Epicurus once complained of Nausiphanes:
"He abused me and called me a schoolmaster."

Lucian, the Graeco-Roman author once said:
"Whom the gods hate they make schoolmasters."

And Montaigne once said among other things about teachers:
"Certainly no one would boast of having a teacher among his ancestors."

When Benjamin Franklin founded his Academy in Pennsylvania, he stated in the preamble of the course of study:

". . . a number of the poorer sort will be hereby qualified to act as schoolmasters in the country, to teach children reading, writing, arithmetic, and grammar of the mother tongue, and being of good morals and known character, may be recommended from the academy to country schools—the country suffering very much at present for want of good schoolmasters."

I presume that such candidates for the profession had considerable advantage over most of the elementary teachers of the day of whom Washington Irving's Ichabod Crane was a kind of stereotype. Perhaps further historical references ought to be avoided.

As already announced, the subject before us this afternoon is "The Objectives, Strategy and Tactics of Teaching". I presume that I ought to define these terms, but Samuel Butler once cautioned against the hazards of so doing when he himself attempted to define definitions. "Definitions", he said, "are a kind of scratching, and generally leave a sore more sore than it was before." I shall, therefore, try to attack the subject by analogy and indirection.

I believe it is possible, without being imprudent, to draw, at least in its broad outlines, a rather simple analogy between a military campaign and teaching. Both may be discussed at three more or less discernible but at the same time interrelated levels. Both are based on definable objectives. Both involve tactical procedures, techniques and materials. The analogy is simply used for discussion, and I have no intention of pressing it to absurdity.

In a campaign there is usually one broad objective which can be expressed in general terms such as, the defeat of aggression, the maintenance of freedom, or the conquest of territory. There is usually one all-inclusive objective on which all resources are focused. It is the dominating, pervasive purpose and it stands at the top of an hierarchy of major and minor objectives, all of which can be defined, and all of which must be attained if the one over-all objective is to be reached. These sub-objectives must be definable but they must also possess an element of flexibility. A minor objective, for example, may be crucial at one stage of the campaign, yet may lose its significance and be abandoned if the campaign takes an unpredicted or unpredictable turn in direction. Both flexibility and

selectivity are essential. It is the dominant objective that gives direction to the total effort. It must be kept clearly in mind at all levels of the operation.

In education too, we have an objective or objectives. In fact, we have an abundance of them, as examination of most courses of study and treatises on education will readily reveal. Spencer set out five. Bobbit, Koos and Briggs each set out ten. The National Education Association was satisfied with seven, commonly but incorrectly known as the Seven Cardinal Principles. The Educational Policies Commission proclaimed four objectives under the title "Purposes of Education in American Democracy". There are dozens of other statements, too lengthy, too numerous, and too nebulous to mention.

Now all this has become very confusing. It has led to bewilderment and anxiety for teachers in training, indifference and cynicism on the part of many experienced teachers, and some suspicion or distrust in the mind of the public. "Surely you school people", they say, "ought to make up your minds about what you are trying to do! Surely you, at least, ought to know where you are trying to go!"

I am often reminded of the situation in which Alice found herself when she met the Cheshire cat on the way to the mad tea party.

Said Alice:

"Will you tell me, please, which way I ought to go from here?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where—", said Alice.

"Then it doesn't matter which way you go," said the Cat.

"... so long as I get somewhere," Alice added as an explanation.

"Oh, you're sure to do that", said the Cat, "if you only walk long enough."

I am also reminded quite frequently of the experience of a friend of mine who sometime ago, lost his way while travelling in the country. A young lad was working in a field at a short distance from the road so my friend asked him if he knew what road he should take and how far it was to a certain town.

"Nope, I dunno," was the reply.

"Well, then, could you tell me what road to take and how far it is to the nearest town? asked my friend.

"Nope, I dunno," said the lad.

My friend tried again but received the same answer.

Finally, in disgust, he said to the young man:

"You don't know much, do you?"

The young fellow thought for a moment and answered:

"Perhaps I don't know much, Mister, but I ain't lost."

I am inclined to think the young lad had been reared on the homely philosophy of Josh Billings who is recorded as having asserted: "It is better to kno less, than to kno so mutch that ain't so."

In his book, "Measurement in Today's Schools" Ross says:

"In the critical period shortly before the Civil War, Abraham Lincoln began an important address with this statement: 'If we could first know

where we are and whither we are tending, we could better judge what to do and how to do it.'

"It is no less true," states Ross, "in education than in government that we must first know 'where we are' and especially 'whither we are tending' before we are in a position to judge intelligently regarding 'what to do and how to do it'".

Now, I should like to submit to you that there are only two dominant all-inclusive objectives of education and, hence, two broad objectives of teaching. They embody all sub-objectives. They give direction to the total educational program. Stated simply, these two objectives are:

1. Broad literacy, and
2. Citizenship.

With apologies to Dr. Hilda Neatby I should like to smuggle a now contraband word into the second objective. The objectives, then, would become:

1. The development of broad literacy, and
2. The development of democratic citizenship.

Nothing that goes into our educational system—the preparation of teachers, financial support, expenditures for equipment, the writing of courses of study, and so forth—can be justified except in so far as it contributes to the realization of these two objectives. Obviously, a society may be highly literate yet not be democratic. Society can exist only when there is widespread literacy.

I have used the term broad literacy in contrast with the popular concept of the three R's. But let me hasten to add that the three R's still constitute the hard core of literacy. Nevertheless, there are additional components in what I refer to as broad literacy. Let us examine the components in turn.

1. **English**—consisting of reading, oral and written expression including spelling and handwriting, and an appreciation of good literature. This aspect of literacy surely needs no further justification.

2. **Arithmetic**—quantitative thinking. Surely this is as important, if not more so, than it ever was.

3. **History and Geography**—the study of people with respect to time and place. These components are sometimes called the social studies. Their essentiality for broad literacy is too obvious to belabour.

4. **Health and Physical Education**—care of mind and body. Again, I think, no argument is needed.

5. **Science**—a study of natural and physical phenomena. Surely broad literacy today is impossible unless a knowledge and understanding of the basic principles and concepts of science are included.

6. **Music**—I believe it is a great tragedy that music does not play a more significant role in the lives of more people. There is a blank spot in literacy without either participation in or an appreciation of music.

7. **Arts and Crafts**—opportunity for self-expression through various media.

These I believe are the components of broad literacy. Now, beginning at the top with broad literacy as one of the objectives of education, and

hence of teaching, we could set up sub-objectives for each component. Furthermore, we could set up objectives for the various units in each component, and so on down to each daily lesson for the individual units. This hierarchy of objectives can be kept quite simple. It need not become cumbersome. The over-all objective simply sets the direction of the instructional programme. The sub-objectives must be defined but they must possess an element of flexibility and permit selection as the programme advances.

The development of broad literacy is the primary function of the school.

What about democratic citizenship? Again, the components with their major and minor objectives can be set up in a simple hierarchy. I believe there are four components:

1. Citizenship in the home,
2. Citizenship in the community,
3. Citizenship in the nation, and
4. World citizenship.

The development of citizenship is largely a matter of helping little savages or barbarians grow up into civilized, law-abiding adults. Of these four components, the first is, of course, the responsibility of the home. The others must be shared by the school, the home, the church, and other organizations and institutions which have usurped some of the responsibilities for citizenship training which the schools, homes and churches either cannot or refuse to accept.

Democratic citizenship is, of course, inseparably related to literacy, but whereas the development of literacy is primarily the responsibility of the school, the development of citizenship is a joint operation, and all forces must be focussed upon it in a carefully synchronized mutual aid programme. I repeat that citizenship education is a joint operation. At no time can the school assume full responsibility for it, but neither can the school ever escape responsibility.

These are the two pervasive objectives of teaching, for each of which a simple hierarchy of minor objectives can be set up. Such an analysis should make possible close co-operation between the "brigadiers, colonels, majors, N.C.O.'s and privates." Confusion in objectives has a divisive effect. Clarity of purpose along the line not only gives direction to effort but is basic in staff co-operation and co-ordination.

There is no need to complicate and thus confuse the objectives of teaching. Simply stated, we want our children "to learn to multiply in arithmetic, and at the same time, we want them to increase in grace."

Now let us look at the second aspect of teaching—strategy. I have in mind, of course, the preparation and planning which of necessity must precede the attack on the problems of the classroom.

At one time it was thought that the only prerequisite for teaching was knowledge of subject-matter. Ability to impart such knowledge or to arouse a child's interest in learning was regarded as a gift. But, Montaigne the French essayist complained about those teachers who were surfeited only with knowledge.

"Like a wick", he said, "drowned in too much oil, this sort of teacher was in danger of giving off a smudge along with his illumination."

Although there may be exceptional cases of this kind, I think Montaigne was guilty of over-generalization.

It is now two decades or so since we in this Province were caught in the ripple of a great current of reaction against teaching subjects. We were told that we were to teach children. Some rather daring reactionaries were bold enough to proclaim that if you were going to teach children it was necessary to teach them something. Now that "something" is of course that part of our culture which exists today in organized bodies of knowledge. Someone may say that it matters little how much knowledge a child possesses if he has not learned how to live with his fellow-men. There is truth in such an assertion only when subjects are simply swallowed or when minds are, as you might say, vacuum-packed.

I was greatly heartened about this matter not so long ago when I read "Developmental Teaching" by James I. Mursell of Columbia University. This is what he says:

"The prime function of the teacher is not to play the amateur psychiatrist or social prophet or to model himself on a good camp counsellor, but to bring subject matter to life as a potent and inspiring influence in the mental, emotional, and social development of human beings."

As our former Dean used to say, "It's the teacher's job to make the subjects glow."

Mursell goes on. I hesitate to use a long quotation but I do rather like his point of view. After commenting on the admonition to teachers 'to divorce themselves from science and think of themselves as giving an all-round development of children,' he says:

"Certainly they should be concerned with all-round development. But why the divorce from science? Cannot science give something vital, something unobtainable elsewhere to this development? Is not the world full of people whose adjustment to life and to many of its most important issues and problems is defective, precisely because they have never acquired the scientific way of thinking, the scientific attitude of mind, the ability to accept, to face, and to deal with objective reality that is the essence of the scientific spirit. The science teacher who would substitute a genial, psychological massage for the great verities of his subject would be doing his pupils a very ill turn indeed. His business is to reveal his subject for what it is, and this has more developmental potential than any kindly laying on of hands of which he is at all likely to be capable. What is true of science is true of every other subject, for the content of the curriculum is the content of human culture, and human culture is the best interpretation of human living that has been attained by the mind of man."

A short time ago at one of our teachers' conventions I was deplored the lack of attention given to nature study in our schools. Afterwards, a young man came up and told me that he didn't know anything about nature study, that he didn't like the subject, and that, of course, he didn't

try to teach it in his school. Now, how he knows he doesn't like the subject when, on his own confession he knows nothing about it, I haven't been able to deduce. But that young man calls himself a teacher. Now, there is only one answer to this sort of thing . . . Yes, and I am sure he would soon become interested in the subject, and perhaps be able to develop enthusiasm for it in his pupils.

To quote Mursell again:

"The unique job of the school is to teach subject-matter."

It's quite a few years since we heard heresy like that.

Now, the obvious question is "How can anyone teach a subject unless he knows that subject and has a passionate enthusiasm for it?" How, apart from having a sound knowledge of subject-matter himself, can a teacher ever hope to kindle enthusiasm for it in his pupils. The theory that one best learns a subject by teaching it is a pretty poor kind of strategy.

Surely one of the basic principles of sound strategy is the development of a broad background of knowledge of the subjects of instruction. Surely it is not unreasonable to expect the teacher of Grade V classes to have a rich knowledge of the adventure and romance in the history of our country and an enthusiasm for the story of Canada adequate to whet the imagination and stimulate the curiosity of young girls and boys. Surely the subject does not have to be murdered by the dictation and copying of notes. Someone has facetiously defined education as that which passes from the notebook of the teacher to the notebook of the pupil but seldom passes through the head of either of them.

Although sound knowledge is indispensable in the strategy of teaching, knowledge of itself is not enough. If a teacher intends to teach John arithmetic she must know arithmetic but she must also know John, and John in many respects is very unlike arithmetic. Arithmetic is orderly, systematic and logical. Johns are found in a variety of kinds and temperaments. Part of the teacher's preparation or planning, which we have called strategy, lies in the study of the growth, development and behaviour of children. Too often John is studied only from a book, and too often the real John does not oblige the teacher by following the pattern of behaviour she anticipates. But I should like to submit that unless in the study of children a teacher develops a fondness for them, this phase of her strategy is poorly founded.

A friend of mine once told me of the remark of a little girl who was discussing her teacher with her parents. This is what she said:

"Miss Jones doesn't love us. She just teaches us."

The late George Sampson once remarked:

"In spite of its name, psychology has nothing to do with the soul." It is easy enough to label a child with an I.Q. test—to give him a number—but it takes the hand of the master craftsman to throw off the defeatist concept of the I.Q. and provide spiritual calories for the nourishment of the soul. One of the best couplets I ever saw, was written by a father to his three sons, ages 6, 8 and 10. It goes like this:

"Gentlemen, I love and like you

Caring little for your I.Q."

Surely the teacher's strategy must include an understanding of children and a genuine interest in them.

I have already mentioned that if a teacher is going to teach John arithmetic she must know arithmetic and she must know John. But she must also know how to bring John and arithmetic together so that arithmetic will have a potent influence on the mental, emotional and social development of John. This involves an understanding of the principles of learning and some basic principles of methodology. There is now a pretty solid body of educational literature concerning the laws of learning which can be studied with profit in anticipation of the classroom. This body of professional information is just as significant for the teacher as knowledge of the processes of the body is for the physician. An understanding of how learning takes place is an essential aspect of the strategy of teaching. Likewise, the general principles of method can be examined and studied as a preparation for classroom practice. Unfortunately, many teacher training schools have wasted much time on the psychology of learning and the psychology of method because their courses have not been tied closely enough to the practice school. They have failed to realize that the theory of learning and the theory of method have little meaning apart from real classroom situations. Through the practice-teaching programme, which incidentally is also an aspect of strategy, many opportunities must be provided for preliminary 'skirmishes' in the classroom. It is only under actual classroom conditions that the theory of learning and the theory of method can be built into the basic strategy and made effective in determining the tactics of teaching.

Unless we are satisfied to follow the Cheshire Cat's advice "to just keep on walking", I must point out that an understanding of the principles of evaluation is also an essential element in strategy. In the words of the Cat, it is essential for the teacher to know "where she wants to get to." It is equally important for her to know whether she is getting there. She must be able to assess the effectiveness of her teaching.

Evaluation consists in the use of measuring instruments combined with the trained subjective judgment of the teacher. Our strategy in evaluation is, unfortunately, not very well developed. We lack the instruments of precision which are characteristic of the sciences. Our effectiveness in evaluation is pretty well illustrated by a limerick I found several years ago:

There was a young girl from McMaster,
Whose head was alfalfa and plaster;
But she looked like a queen
And she smiled at the dean,
So he marked up her paper and passed her.

Courses on evaluation may help the teacher to understand the general nature of the process, and may give the teacher some facility in the use of standardized tests. But though to this extent, evaluation is an aspect of strategy, we must not forget that it is a day-to-day process of checking which must go along with instruction, and is, therefore, also an aspect of the tactics of teaching which I shall discuss in a few moments.

Before leaving this matter I should like to issue a warning. Let us not, in our zeal for measured results, create an excessive demand for only those results that we can measure. As I have already mentioned, we are anxious that our pupils learn to multiply in arithmetic but we also want them to increase in grace.

There is, of course, at least one other aspect of strategy which I ought to mention, and that is an understanding of society and social processes. Robert Hutchins says that education is a secondary dependent subject. It depends upon the kind of society in which one lives and the nature of the improvements in that society which are desired. It is only upon a knowledge of society that a defensible philosophy of education can be developed.

About 2000 years ago Seneca complained of the insular nature of the schools in his famous dictum:

"Non vitae sed scholae discimus."

I hope I have the correct interpretation of what Seneca had in mind for I think he was referring to the great danger of teaching school instead of life. Twenty centuries later we are still in the same danger unless the strategy of teaching is firmly based on a reasonably comprehensive knowledge of how our society operates. The school must be kept tuned to society but must not become simply a reflection of it. Its function is not solely to reflect society but to maintain and improve it.

The strategy of teaching consists in the planning and preparation which precede teaching. Strategy must be constantly tied to the over-all objectives. But like the sub-objectives, strategy must possess a degree of flexibility. The research worker may reveal pertinent data which justify changes in strategy, as for example, such changes as have been made in the teaching of reading. Although the researcher is part of the Intelligence Service, concerned mainly with technical data, the teacher in effect is her own intelligence officer. She must be constantly extending her knowledge of the subjects of instruction; she must constantly try to find out more information about children, particularly those whom she teaches—their backgrounds, their personal problems, their interests, their immediate difficulties and their hopes for the future. She must keep up to date on the psychology of learning, the changes in methodology and improved practices for evaluation. She must be alert to the changes and developments in society.

The third and final level at which the educational process operates I have called tactics. It is at the tactical level that real craftsmanship in teaching becomes apparent. Skill in teaching is revealed in the classroom, not on term papers. But, unfortunately today salary schedules are tied more closely to term papers than to competence in the art of teaching.

Teaching is an art. It has always been an art and I think it always will be an art, though science may help to improve and refine it. All great teachers in the past have been artists.

Although I hesitate to use another long quotation, I simply must read to you what the late George Sampson says about the art of teaching and the science of education. This is what he says:

"Experimental work may be very valuable, and I am not so stupid as to oppose or decry it; it is not everybody's work, and it must not be the first charge upon the energies of teachers. I want teachers to remember that they are first of all healers and not vivisectionists. I want them to see clearly that laboratory work in school is not education, and that to test a mind is not to teach it. Dogs are not really improved by vivisection, even if the mind of the vivisector is.

Teachers may, if they will, conduct a series of very useful experiments in school, but that is not what they are there for. Teachers go to school to practice the art of teaching, not to pursue the science of education. What the teacher has to consider is not the minds he can measure but the souls he can save. Nothing is easier than to neglect children for the pursuit of neurograms. Neurograms are much easier to manage. Psychology can and should assist the teacher, but it must not obsess the teacher. Let me put it this way: If a hungry child came to you, you might find him an interesting field for a study of the phenomena of starvation. You could compile illuminating graphs of his reaction to various stimuli, and you might even work out mathematically how long it will take him to die, and check the result by experiment. You might do all these things, but the obvious human thing to do would be to give him something to eat. If teachers abandon the art of teaching for the science of education, they may compile some ingenious and valuable statistics; but while the shepherds are thus dallying with the delights of mathematics, the hungry sheep look up and are not fed."

The tactics of teaching cannot be set down in a neat and orderly recipe book. Too many young people come to teacher-training institutions looking for just that, and are frequently disappointed, sometimes even critical, when they discover that the elixir is not so easy to find.

The individual lesson is the unit of teaching, and to teach lessons effectively requires a high degree of tactical skill. The teacher must have a clear concept of the purpose of the lesson and must see the significance of it in the whole scheme of objectives right up through to the two main objectives which we have already discussed. If her strategy has been well founded, she is then ready to launch the attack.

The initial tactical manoeuvre is to establish the pupils' mind-set for the lesson. She arouses their interest and curiosity, she whets their imagination and stimulates their enthusiasm for learning. The essence of good teaching is stimulative power, and the good teacher draws upon this power constantly throughout the lesson to maintain interest and sustain the efforts of the pupils.

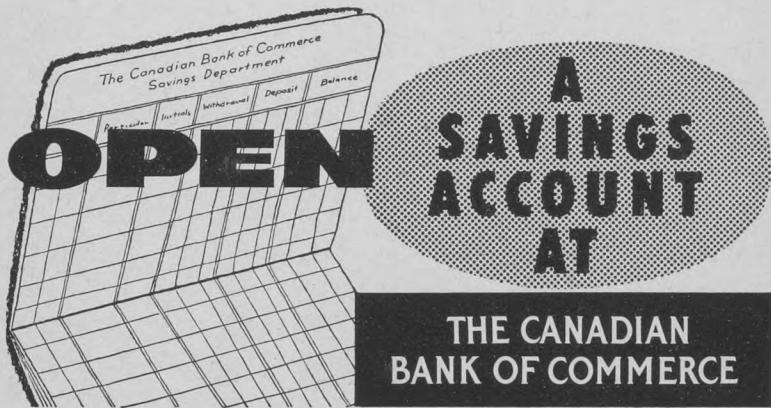
As the lesson proceeds she will most likely use the tactics of questioning. By means of a skilfully developed series of questions she may help pupils to sort out their thinking and concentrate it upon some significant principle or generalization. She knows that her job is to help pupils gain insight and understanding. Occasionally, she supplies some necessary information but is careful not to supply too much. For she knows it is better, as someone has said, "to help pupils do their own mental tailoring than to supply them with ready-made thoughts." Canon Walker of King's College, Dalhousie University, recently remarked that it is a common practice these days for the teacher to learn the lesson and the pupils to hear. This he thought was the reverse of what teaching should be. The teacher is, as Socrates once called himself, "an intellectual midwife, one who uses questions like an obstetrician's forceps to deliver ideas."

She is alert at all times to the inattentive pupil but she maintains a subtle control of her class mainly by means of the eye and the voice.

Hers is a classroom of orderly disorder, not one of disorderly order. She can adjust her tactics in an instant to cope with an emergency or to 'mop-up' an obscure point in the lesson.

She uses visual aids, concrete materials, and on occasion the radio. She has perfected her tactics in the use of the blackboard. She is skilful in using the chalk and her letters or figures are models for pupils to imitate. She knows that what she herself is and does, spreads like a contagious disease among pupils who respect her good craftsmanship. Her lessons, she occasionally punctuates with humour which springs from a broad humanitarianism. Her manner and bearing at all times are dignified and exemplary. She is steady, she is methodical, she is just. Her pupils work because the spirit of the classroom is work. She knows with Emerson that the "two elements, drill and enthusiasm, are not incompatible." She excels in the tactical skill of "combining delight with discipline." She is exacting and thorough. She knows that what a teacher expects from her pupils she usually receives.

The good teacher knows, too, that well-taught pupils are her best public relations experts. Her first allegiance is to the art of teaching. For a job well done in the classroom usually brings to the teacher, recognition from the community she serves. Teachers often complain of the lack of prestige. The good teachers have more than they are aware of; the poor ones have no less than they deserve. Prestige is a resultant and not the antecedent of competence. It would be hypocrisy for us to try to drum up prestige unless we can demonstrate competence in the classroom. I sometimes think we might profitably declare for a while a moratorium on research and focus our energies on improving the great art of teaching.



Over Six Hundred Branches to Serve You

"A SCHOOLMASTER CONSIDERS SOME ISSUES IN SECONDARY EDUCATION" *



by EWART MORGAN
Principal, Daniel McIntyre Collegiate

It has always been a matter of wonder to me that people in general, and educationists in particular, will submit themselves so patiently to the crescendo of opinion and pronouncement in book and in speech by all manner of persons interested in education. Most of us school men are not very profound philosophers, but when we are faced with a school full of living expectant teen-agers and must program them, instruct them, and for their guidance show them what for each may be the good life, we simply must face the raw facts here and now and find answers to the problems they raise. Then it is that we need philosophies of life and of education on which to build and these must be adequate to meet the

realities of the situation. It is in that respect that sometimes the armchair critics and planners in ivory towers are less than satisfactory to grass-roots schoolmasters. It is as one of these dirt-schoolmasters searching for philosophies and solutions to living day-to-day issues that I throw myself on your mercy.

THE CRITICISM FROM OUTSIDE THE SCHOOLS

"A Schoolmaster Considers Some Issues of Secondary Education" is the announced subject for this address. There is a plethora of issues and it has been necessary to decide whether to deal with a selected two or three intensively and rather fully, or to examine several of them, suggest the direction in which may lie their solution, and leave the pursuit of further implications to the wisdom and experience of this professional group. The latter procedure has been chosen.

I need not remind you of—much less review for you—the torrent of discussion that has loosed itself upon the secondary education scene in the past two or three years. Some of it has been part of a growing interest in and deep concern for all our educational institutions, some for the public schools in general and some for the high schools in particular. Some of the concern has had to do with finances and the taxpayer, some with the teachers and administrators, some with the health and welfare of pupils, and some with the content and methods of instruction. Today we shall be concerned rather exclusively with problems associated with who shall be taught, what shall be taught, how shall teaching be carried on, and who shall carry it on. These are probably the questions nearest the heart of the practising schoolmaster.

* (Address to Faculty of Education Students and Alumni, University of Manitoba, October 30th, 1954)

You see, it is a fact that men and women, in the front line closest to the boys and girls and the intimate problems of teaching them, are becoming not a little impatient with some of the pronouncements and the evaluations of the current high school. True enough, they come from persons who have some kind of association with the schools, the pupils, or the graduates; but their association is always of a limited character. The university professor knows a certain select group of graduates, the parent knows about his own particular boy or girl in a particular school, the business man or industrialist thinks in terms of a vocational training which may be quite a secondary aspect of the total program. The journalist, while he is accustomed to probing into many areas of social and political life and while many of them are the recognized social engineers and social philosophers of their communities, seldom sees the inside of the school or understands the variety of human material that lives and works there. The writing and the talking of all these persons in recent years have produced a welter of conflicting opinion as to the effectiveness of our public schools and have compounded the confusion. Indeed, one is amusingly reminded of the blind men who went together to touch the elephant; they found that it resembled a wall, or a tree, or a rope according to the portion of the animal which they happened to touch. Each of us views our educational scene from our own vantage point and too much fails to remember that it is a very limited part of the whole.

This is not to imply that these groups of persons are to be denied their right of criticism and of suggestion to the educator. We agree that the schools belong to all the people. Indeed, it is only as the educator cons the considered views of these people and synthesizes them in his planning for, and his conduct of, the schools, that he can make them "the people's schools", and make his program realistic to the world in which the young person lives and for which he is preparing himself. The attitude which we must adopt to criticism reminds me of a direction recently given by a woman horse owner to her jockeys, that they should "win as though they were accustomed to it and lose as though they enjoyed it." We may paraphrase and say to the educator, "Accept the praise as if you are accustomed to it and accept the chiding as if you enjoy it."

However, having said all that, I submit two very determined criticisms of a great deal of the current discussion of what our schools are doing. The first of these is that too much has been written by persons who have been considerably less than humble in recognizing that their own experience of problems of secondary education is very limited, and in recognizing the good qualities of the minds of many of those who are devoting their very lives to the creation of schools adequate to the needs of our day and our type of society. To those who meet face to face the actual and real problems of boys and girls within the high schools these statements reveal complete ignorance of some highly relevant facts and conditions.

The second criticism is that too little has been heard from those within the schools. That, of course, is their own fault; to some measurable degree they have failed in their responsibility for leadership in acquainting society with the problems they meet and with possible solutions for them. One must be somewhat less than severe, however, in criticism of them for being less vocal, because it is very difficult to be immersed in the mass of day-to-day minutiae of the task and at the same time to do frontier

thinking in the philosophy—and, indeed, the practice—of one's work. In fact, one would defend the teacher-in-service in that too frequently those on whom he has relied to develop the philosophies, to do the research, to lead the public (that is, the educators in schools of education and upper levels of administration all across the country) have lost contact with the realities of boys and girls and have consequently even misled their educational dependents and the credulous public. Were this not the case the flagrant evils of "progressivism" would not have raised their heads. In spite of that qualification, however, we who are closest to the children have been too silent in interpreting our schools.

One more remark concerning outside criticism and I leave the point. It is irritating to know that the armchair analyst and the outside observer can state their position with a careless freedom and lack of concern or responsibility for the implications of their own proposals. They never need to leave the field of merely academic inquiry. The schoolmaster on the contrary, while he has before him all the conflicting theories of the day, must hour by hour act on them and convert his theories into the actual activities of specific boys and girls. He cannot afford to be merely academic. If those who are remote from this living situation make demands upon him that are not at all times realistic he must indeed speak up. He can adjust his course to sound advice and direction, but he must refuse to abdicate to back-seat driving.

HISTORICAL ORIGINS OF THE CURRENT DEBATE ON "PROGRESSIVISM"

What, now, are some of the issues of the day?

The one that comes to mind first, of course, is that broad issue known as "progressivism" which breaks out in debates on anti-intellectualism, practical education, theories of discipline, claims for and against education for social living, the place of interest as a motivating force in learning, whether we teach subjects or children, and numerous other battlegrounds that we ordinarily think to be very modern controversies. However, the historical roots of all the conflicting theories give us a perspective that is interesting and remind us that, after all, in the stream of time experiment winnows out truth from error so that the fear that either the traditionalist or the progressivist shall wreck education can be greatly discounted. Let us be historical for a few minutes.

It is elementary history that over the centuries the forms and content of formal education have been many. The Spartan, the Athenian, the Roman, and the Medieval types of education varied because basic concepts of life and life values, of society and social needs, varied from community to community and from age to age. And so to understand the roots of today's conflicts and the status quo and how we got this way we go back in time.

The content of formal education in schools before the Reformation had been marked by an emphasis on moral and religious instruction (schooling was the prerogative of the Church) and on the preservation of classical literature (Greek and Latin) for its own sake. Much of the learning was remote from the day-to-day living of the people.

Then appeared a new note of realism in three directions: (1) the classics became studied in order to apply the ancient knowledge to modern life and practical social problems, (2) a new emphasis was placed on education for the practical duties and pleasures of life, and (3) there emerged the modern scientific interest in the study of nature with emphasis on examination of its phenomena and an interest in cause and effect. These were the days of Erasmus, Rabelais and Milton; of Montaigne, Bacon and Comenius. This new realism in education was general by 1700.

Contemporary with this change in the content of formal education there became firmly established what has been described as the "disciplinary" concept of education. Its great formulator and proponent was John Locke (1632-1704), whose influence in English and American education has persisted to the present day. It was the claim of this school of thought that the aim of education was less the mastery of a given body of factual knowledge than the development of intellectual force on the part of the student. This intellectual force was cultivated by the exercise of the mind in the various fields of learning (languages, mathematics, sciences), in the solving of problems, the construction of essays and poems, in memorization, and above all in doing with the mind whatever was difficult to do. Intellectual power developed in one field of study would carry over into other fields and prepare the student to achieve in whatever field he might be called upon to solve the problems of his life. Says one French writer, as he argues for the disciplinary education of the classics, "Education is not apprenticeship to a trade, it is the culture of moral and intellectual forces in the individual and the race."

The influence of Locke and his followers has been potent in educational thought to the present day. Involved in it is the study of the thoughts and ideas of great men, a mastery of language, the solving of abstract as well as concrete problems, meditation and reflection, habit formation, genuine mastery of facts, close reasoning, and other similar characteristics and activities of learning. Until well into the 19th century in the schools and universities of England and Germany the spirit was similar; the classics and mathematics dominated the programs; preparation for specific aspects of life and its manifold problems was not considered the function of the school. In America it persisted too, but here certain more recent conceptions got a foothold.

Then on the scene came Jean Jacques Rousseau (born 1712), the philosopher antecedent of the French Revolution, with his protest against existing social institutions and in particular against the formalism of educational content and method. His hypothetical Emile received an education based upon the natural interests and activities of the boy; the nature of the child was examined and made the basis of teaching him; interest became the chief motivation and the basis for selecting all teaching content. Into teaching theory entered a concern for primitive emotions and natural instincts, the treatment of children as children rather than as undeveloped adults, the teaching of languages by conversational methods rather than by grammatical exercises, a recognition of physical games and exercises as education, the admission of motion and noise to a place in formal training and processes, the teaching of handcrafts, the use of the vernacular instead of the classical languages, the connection of instruction with realities instead of words. The new education of the 19th century

based on "interest" was arriving. It sounds suspiciously like modern "progressivism".

For a century these principles were being developed from theory into schoolroom practice with the emergence of the science of psychology and of the school practices of Pestalozzi, Herbart, and Froebel. Emphasis on sense-perception; the use of the immediate environment of the child in teaching procedures; a new emphasis on conduct; a study of the developmental changes from infancy to young adulthood; increased self-activity, play and constructive work; a new interest in preparation for social living,—all these came into the newer educational thinking and techniques at elementary and secondary levels.

Contemporary with these advances in the techniques of schooling came the acceptance of the sciences as legitimate fields of cultural study with a consequent broadening of the areas accepted as the basis of a liberal education. A growing respect for knowledge for its own sake, as well as for the disciplinary intellectual values attendant on the acquiring of it, also marked the 19th century and added to the accepted conception of the liberal education.

Then came the great sociological revolutions of the later 19th and the 20th centuries. Besides the concept of education as a means of personal culture and development was placed a new insistence that education must train for living in a society and for the assumption of civic duties in a democratic setting. Education for all the people and provided free by the state; education as a means for social betterment; a tremendous broadening of the curriculum to meet these new functions of education; education as a means of social control or even as a propaganda machine,—all these became characteristics of the new education. Free, universal education in public schools has now become an accepted duty of the state. Preparation for citizenship and vocational life by specific vocational training have been added to the task of educating youth. All this has come to pass in one hundred and twenty-five years. Pestalozzi, Herbart, Mann, Ryerson, Dewey and a host of lesser lights have been the prophets and founders of the movements which have produced all this newer thought.

This review of four hundred years of educational development in the Western World has been undertaken in order that we may see just what is the nature of our current issues. Secondary education today is a composite of our inheritances from frontier thinkers and philosophers and practitioners whose influence has persisted through the generations; all the accretions of the years constitute today's practice. The monks of the middle ages, Montaigne, Erasmus, Bacon, Comenius, Locke, Rousseau, Pestalozzi, Froebel, Mann, Dewey and the others,—all these are a part of the modern school and are inherent in it. Whether you are the most conservative traditionalist or the most rabid progressivist in the controversies of today depends upon how much of each of them you have accepted and where you put your greater emphasis as to the function and the techniques of education today. The traditionalist is essentially the son of John Locke; the so-called progressivist traces his paternity to the radicals of two centuries ago as well as to those of more recent time.

WHAT IS CURRENT "PROGRESSIVISM"?

That discussion now brings us to some of the specific current issues which stem from the variety of the emphasis that educators and the critics

have put on the functions of education as they have accepted or rejected the thinking of their predecessors described above.

The first in the public mind, I suppose, is what has been called "progressivism." Briefly, the progressive movement takes its name from the Progressive Education Association. It was founded in 1919 among adherents and protagonists of that content of instruction and those techniques of instruction which sought to emphasize the importance of interest as a motivating force; methods of presentation and content that took greater cognizance of the age and age-development of children, that encouraged more physical activity and more movement in the classroom, that sought to use the normal activities of children and youth as vehicles of instruction. This school of thought received its theoretical inspiration in the College of Education of Columbia University; its prophet was Dr. John Dewey. The movement spread across the country and has colored the thinking and the practice of all modern public school education. Some of its later adherents, however, ran hog-wild in their application of Dewey's principles and compelled the organization to disavow much and to change its name in an effort to disown the excesses. The excesses have damned much sane conservative and reasonable progressivism in education.

The penetration of this educational practice has been deepest in the elementary school area; the resistance has been greater in the secondary. This penetration created reaction which expressed itself in the books, the magazine articles, and the speeches of the critics. So strenuous has been the debate that both terms, traditionalist and progressivist, have been used derogatively and scornfully in a "name-calling" quarrel which has brought the terms into some contempt. The excessive claims made by both sides have complicated the situation seriously. Actually professional educators on this continent today run the whole gamut from one extreme to the other; most of them undoubtedly being in the broad middle. This majority hear the name-calling and wonder just who are being described and whether they themselves are in the camp of the traditionalist or the progressivist. The persons described are often very difficult to find, because they cannot be identified among colleagues in the classrooms.

In Canada in recent times the smoulder has been fanned into quick flame by the appearance of Dr. Hilda Neatby's book, "So Little For The Mind"; in the United States "Educational Wastelands" by Dr. Arthur E. Bestor has been probably the outstanding statement of the opposition to progressivism. Both books are by professors of history and both appeared about a year ago. In discussing the issues involved in the broad debate I shall have in mind those that are raised by these two writers, although not specifically discussing the books themselves.

Both writers deal with the term "progressivist." Neatby does not define it, but certainly does not like it. Bestor is more careful; he says that the term "progressive education is vague and ambiguous. It is applied to a multitude of different programs, with many of which I am in hearty sympathy. On the other hand, many tendencies in contemporary American education that are labelled progressive can be more accurately described, I believe, as 'regressive education'." Local authorities can accept this kind of statement heartily. Bestor would accept the emphasis of the Progressive Education Association on teachers knowing their children individually and as an age-group, on interest in one's work as the best

kind of motivation, and on the use of concrete and experiential materials in instruction. He would deplore any tendency to undisciplined behavior and thinking, to the elimination of vigorous industry and hard challenge and toughness in the studies and the tasks, to the sacrifice of personal scholarship on the altar of socialized education.

MANITOBA HIGH SCHOOLS—TRADITIONAL RATHER THAN PROGRESSIVIST

In Manitoba high schools the term "progressive", in its derogatory sense, just cannot be applied—nor within my personal knowledge in Canadian high schools generally. On the contrary, we are traditional. What are the hall marks? No Manitoba school has freedom to select its own course of studies; that comes from the central provincial authority. No school can select its own textbooks; they are prescribed for it. Teaching classes as not limited to 20 or 25 students, without which limitation many of the techniques of progressive education cannot be used. In very few subjects of Grades X, XI, or XII is the standard of achievement determined by the teacher himself; a province-wide examination sees to that. No high school can on its own certification send its graduates to a university; matriculation examinations and outside standards must be met. "Core" or "fused" or "integrated" courses are impossible; the final examinations are applied subject by subject. Freedom in the selection of method of teaching is highly restricted as long as external examinations and a heavy curriculum must be met; for example, in Manitoba even the use of moving pictures for instruction is pathetically limited in high school because that is not a particularly profitable technique in the preparation for external examinations. In the high schools classrooms our teachers simply cannot (even if they want to do so) be "progressive" in the extravagant sense and they find it very difficult to be so even in the very conservative sense. On the contrary, our high school system probably errs in the direction of a conservative disciplinarianism (in the John Locke sense), and prevents many schools with excellent facilities and very many competent teachers from giving a kind of education that could be more vital and stimulating to students and more valuable as an education for life in a democracy.

The major claim and complaint of the critics is that schools have given up the conception of education as "intellectual development." They claim that the courses have been emasculated of intellectual content, that doing things has become more important than acquiring knowledge and learning to do effective reflective and contemplative thinking, that the so-called "practical" education displaces the humanities, that high school graduates are relatively ignorant of English or history or science or mathematics, and that they have not cultivated their powers of concentration and the ability to think problems through.

The discussion of this issue cannot, of course, be contained in a paragraph or so. In some respects our authors have a case; they would confirm the president of Yale University who very recently deplored the decline of the liberal arts as a force in the national education system, claiming this to be a threat to "produce an educational collapse and cultural setback". In other respects the writers seem to be very unaware of certain vital new factors in the situation, and they provoke certain pertinent statements as we differ with them.

First, our high schools are giving the university, industry and commerce as large a body of competent trained minds as ever they did. These young people read as well, express themselves as well, calculate as well, face university studies as well, and contribute as resourceful and complete personalities as did those of preceding generations. They are the young scientists, engineers, economists, doctors, preachers, teachers, civic leaders, musicians, business men. If the universities are producing scholars at all, the high schools can share the credit.

Second, in part as claimed by the writers, the high schools are teaching many students to whom their criticisms of failure to master the courses can apply. It is impressive that so many of the critics are university professors; we in the high school sympathize with them. Obviously, if University studies are of the level that they ought to be, they should be attempted only by the elite in intellectual capacity. The President's Commission on Higher Education (U.S.A.) in 1948 reported that probably 32% of the population have the mental ability to complete the advanced courses in the humanities or in professional training. In years past when high school graduates were a select few from the total youth population and largely academically capable, those who were graduated did represent an intellectually elite group. But, while in 1920, in the United States, about 9% of the 14-to-17-year-olds graduated from high school, in 1942 the percentage had risen to 51%. At the same time the percentage enrolled rose to 73% and today is over 80%. It is now deeply embedded in our social philosophy that our high schools shall be open to as nearly 100% of this age group as can profitably be attained. Today's high schools consequently house thousands of students for whom the courses of yesterday (strictly academic in character) are inappropriate in view of both their interests and their abilities, and for whom the present external examination standards are impossible and ridiculous.

Our high schools today have in them students with intelligence quotients ranging from 80 to more than 140. The intellectual content of the program must indeed be tempered to the shorn lamb and here our schools are failing.

The fact of the matter is that we must admit that it has been the sane progressivist who has thus far provided any answers for this problem; on this count we must thank Dewey and his school. How good for them it would be, were some of the critical professors of the universities, and the teachers of secondary private schools who can select or reject their enrollees at will, to spend one year teaching in a current public high school! They would indeed be compelled by the nature and quality of their newly-discovered student body to hasten a revision of the purely academic programs of 1920, 1930, 1940, and even later.

WHAT ARE THE ALTERNATIVES FOR MANITOBA?

With this more heterogeneous population in the schools what are the alternatives to those academic programs in the humanities which provide the kind and the level of content urged by writers like Neatby and Bestor? They are several.

(1) Two Standards of High School Graduation—

One possibility is that standards in these courses can be reduced or the courses curtailed and modified to meet the lesser abilities of the newer

elements in the classes. Vigorous resistance to this alternative has come from the universities and from the traditionalists who deplore any "lowering of the standards". And yet, in Manitoba, when 80% or more of our high school students are taking subjects whose terminal examinations are the same examinations that grant University entrance, the logic of the situation says that either the standards will inevitably be lowered or the failure rates will inevitably be much higher. It simply cannot be otherwise and the plain fact of the matter is that both these things are happening here today. Examinations at the end of Grade XI look much like those of years gone by but the actual standard of achievement accepted is lower every time the pass mark is adjusted downward (which frequently happens); at the same time the failure rates are often fantastically high and cannot be fairly explained away by the sheer laziness and loafing attitude of girls and boys. If a sliding scale were introduced in Grade XI, as was done in the Grade IX examinations in 1954, this condition would become glaringly apparent and would compel a solution.

In consequence of this situation the high school educationist has a profound sympathy for the plight of the University which must accept its own matriculants under today's conditions. In spite of the traditionalists "one standard and no lowering of it", there should be two acceptable standards of high school graduation in the General Course, which in Manitoba includes all students not enrolled in the specifically vocational courses or those who have failed to find their way into the High School Leaving Course. Were two levels admitted, the demand for suitable intellectual content in the high school studies could be met; the levels of content could then be better adapted to the wide range of ability and suitability found in our high schools today. On the one hand, a level of scholarship suitable for entrance into the University could be maintained, and on the other hand a second level could well meet the needs of hundreds of less scholastic but equally worthy pupils who quite legitimately want a general high school education while postponing their specifically vocational education. This solution would help to meet the problem discussed with deep concern by President Sydney Smith in a recent issue of Saturday Night, when he lamented that "universities are admitting many young men and women who ought not to be admitted. . . . There is room in Canada for improvement in our selective processes".

Indeed, unless some form of two-level standard is provided it may well be incumbent upon the University either to provide its own entrance procedures or to insist upon an average of, say, 60 or 65% in the Grade XI examinations where the ordinary high school pass level in each subject is 50%. The extension of technical institutes at the post-high-school level or the provision of the junior college would handle the high school graduate who does not reach true university entrance standards.

Sometimes it is said that the academic subjects are not appropriate to the less able students; that these students should be provided with trade schools where they spend all their time in handling things. This is not so. The development of a common culture among our people can only be achieved through the studying of the elements in it that are common to all the people. These elements are found largely in the areas represented by the "academic" studies and in patterns of good social behavior. It is by these common elements that we are bound together into a people; that is, by our language, our literature, our national aspirations, our

common citizenship, our history, and our economic interdependence. Both the brightest and the slowest need them and can be taught them. Their successful presentation to the various abilities lies partly in an adaptation of content of courses in English, history, geography, science and mathematics to the various levels of ability and partly, possibly more so, in the variation of methods of instruction. The presentation and thereby the transmitting of our culture to our youth is a primary function of the school, and the high school has a greater responsibility to provide this general education than it has to provide specialized vocational training.

It has been amply demonstrated in the psychology laboratories and it is well known to every teacher that there does exist an elite, an aristocracy of intelligence in every high school. In spite of the contention of some pseudo-democrats that all forms of education are comparable as media of education, whether it be the history book or the lathe or the gymnasium, it is vital that this aristocracy be provided with special and strong meat in the studies that come from books. Society neglects stretching the capacity of these students at its own peril. Our leaders in every walk of life will come in the main from this elite, and we must differentiate our offerings in a school program to meet the needs of this group as well as to meet the needs of the group who require also the lathe. Ex-President Hutchins of Chicago University has well said, "To destroy the Western tradition of independent thought it is not necessary to burn the books. All we have to do is to leave them unread for a couple of generations." We know, of course, that largely it is the most mature and difficult of the books that will keep this civilization alive, and that only the best minds will be able to read those books.

I submit that all our students at high school age in a democratic society should be reading books. Not all can read all the books. All should be reading our heritage of the English language, philosophy, history, science, music, mathematics,—not all at the same level of difficulty but at levels for all. In accepting this principle for high school practice we are driven to admit the need for several levels of instruction and, by corollary, for several standards of achievement. In Manitoba it is not enough to differentiate only between a General Course and a Vocational Course; levels within these courses must be provided.

In passing from this matter of differentiation, I am prompted to add that never will our high schools in Manitoba be able to do a satisfactory job of differentiation without the larger high school administrative district and school. Likewise, never will the existing larger school districts like those in our cities and certain towns be able to do the job of differentiation which they now could do, as long as they are tied to Programs and studies that must be possible in the one-room high school.

(2) Use of the "Practical" Subjects—

A second possibility, (beside that of providing more than one level and standard), is to provide other types of training and education in addition to that distinctively academic or related to books. This, indeed, is where the critics of to-day's schools tangle with John Dewey and the "progressivists". They object to the "practical" areas of instruction. Some of them, like Bestor, qualify their objections but are highly critical nevertheless of subjects like typewriting, shop work, home economics, the vocational subjects and guidance instruction.

When Dewey entered upon the scene after the turn of the 20th century it was probably again a case of the times throwing up the man to meet its new needs; history seems to do that. Democracy in social life has emerged as the aim of the Western world, and a formulated philosophy and new practices in education are required to implement the new aim. Political and industrial democracy demands a literate people, each and every person with his individual capacities developed as fully as can be. Compulsory attendance at school follows naturally. The functions of the school expand, with inevitable consequent changes in teaching content and methods. New types of students enter the classrooms where courses have customarily been almost entirely for university preparation. To what extent the Dewey philosophy helped create these conditions and to what extent it developed answers for the problems of the emerging democratic ideal, it is difficult to say. In any case the conditions, the philosophy, and the answers (in part) emerged concurrently. To accept in this day the complete claims of the critic like Dr. Neatby is to turn one's back on a social development and an accepted democratic social philosophy that realistic educators in this modern world simply dare not ignore, even if they were inclined to want to ignore them.

Consequently, few of us are prepared to go along with the critics when they claim that the function of the public high school today is almost exclusively to teach the four intellectual disciplines of language, number, science and history, to the practical exclusion of the arts and skills in a world which demands them for successful living. A knowledge of these arts and skills is a component part today of the general education required in order to understand one's world quite apart from its vocational aspects. The social philosophy involved in the critics' position is quite unacceptable to current society and the educational philosophy that flows from it is therefore untenable in the schools of that society. Even if only for their value in creating interest in all school studies—which these persons refuse to accept as legitimate—we would accept the practical subjects; they can be one aid in tiding youths through an educational program which great numbers cannot be expected to understand in full and therefore accept with cordiality. One has to know the school population intimately to understand the force of that argument. But, quite apart from and additional to the interest factor, of course, these subjects provide knowledge and skills which of themselves are legitimate education.

It is significant to the criticism and probably not well known that the great majority of the General Course students in Manitoba spend only 10% of their school time on the "practical subjects". In the definitely vocational courses in high school it is required that 50% of the day be devoted to the general education subjects; only a small percentage of the high school students in Manitoba are in vocational courses. We would agree with Bestor, that vocational courses should be deferred as long as possible, that general education should be maintained as long as possible, and that it should be as great a part of the students' program as possible at the high school level.

(3) Exclusion of the Academically Less Fit—

The third possibility is to admit to high school only those young people who can adequately handle an educational program consisting of the academic subjects at a level involving intellectual content that will satisfy

the apparent demands of the critics. Any educationist who would recommend this policy to a school board or provincial legislature would be completely unacceptable in any Canadian province. I can hardly think that Dr. Neatby quite means it when, after arguing all through "So Little For The Mind" for a return to what is a highly academic program in spite of the realities of today's student population, she says (p. 333), "If they are offered abundant intellectual nourishment and if they prove themselves unable or unwilling to profit by it they should not only be allowed to quit, they should be obliged to withdraw." Thus to use the old program would mean to return to a high school open exclusively to an intellectual aristocracy. And yet we would still put a ballot into the hands of the unschooled! In the same paragraph she continues, "When responsible educators explain that for the benefit of these students (less in ability) the whole scheme of high schools must be reorganized, it is clear that the keepers of the gate are opening the citadel to the barbarians." She has at that point gone too far and is denying the public high schools to a very large part of our teen-age youth. On the contrary, even if only to protect the best interests of the intellectual elite in the high schools (which is only a part of the argument) the scheme should be reorganized—and a general high school education provided which contains variety enough to meet and test the capabilities of all teen-age youth whatever their academic ability.

EMPHASIS OF "SOCIALIZED" EDUCATION

A major criticism made of progressivism in the schools is the emphasis placed upon a content and a methodology which features "socialized" education. This kind of teaching evidences itself in class instruction in which groups of students work on group projects, partly in order that members of the group may help one another master the studies, and partly that they may learn to work co-operatively together in social situations, by getting experience in acting well as a member of their society, and by each contributing to the advancement and welfare of the group. Of the overuse and misuse of this method of instruction legitimate complaint is always in order. Its occasional use is justifiable and helps to meet a proper function of a public school, but as a steady diet it can be wasteful of time and effort for all concerned. On the other hand, its reasonable use in a high school discussion group in history is very desirable. As a high school teaching technique in Manitoba high schools any charge of its frequent use must be heavily discounted; for, you see, it is not the most profitable technique to use in preparation for the final examinations and therefore is not to be used large scale here!

THE LIFE "ADJUSTMENT" PROGRAM

The critics do not like "the life adjustment" program advocated by many proponents of the newer methods. However, so far as Manitoba and Canada are concerned, this program is virtually non-existent. Most Canadian teachers do not even know the meaning of the term. More important is the fact that the prescribed programs for Canadian high schools are so subject centred that its use is an impossibility except in an exceedingly limited way in the guidance program of the local school. Indeed, it is virtually impossible to integrate any two of the traditional

subjects, much less develop a program based on experiences instead of organized subject matter.

THE EXTRA-CURRICULAR PROGRAM

By implication, even when not by actual statement, today's extra-curricular program of high schools comes under the heavy gunfire of the critics; they say it does not contribute to the intellectual content of the school courses. Here, of course, one accepts or rejects a program of athletics, social activities, music, dramatics, school councils and committees, and school magazines, according as he accepts or rejects in his educational philosophy that a function of the public schools is the training of citizens to participate in the activities of their community. (The shades of Pestalozzi, Froebel, Rousseau and Dewey fall across the page at this point of course). The school is a very large part of the student's community. Participation in a community activity is not learned from a book; it is learned by actual participation and doing. Thus his participation in the operation and direction of student life in the school is as much a laboratory exercise in this area of learning as is the handling of gas jet and beaker in the Chemistry laboratory or a library book in history. Acceptance or rejection of the extra-curricular depends upon one's basic philosophy. It is in such programs that the university student learns the art of living, but only 7% of Canadians can learn it there; the others will learn the art in the only college they will ever know, the local high school. Abuses of over-participation in such activities by certain students must of course be risked and controls in this respect must be instituted and exercised by teachers constantly. I surmise that despite the critics, the high schools of a democracy will relinquish this part of their program for training youth only reluctantly.

THE PROBLEM OF YOUTH DISCIPLINE

Growing out of the issue of methods comes the controversial issue of discipline. The psychology of discipline is much more subtle than the psychology used in, say, the teaching of reading. One can teach reading almost by rules, but discipline involves the mind and personality of two persons, with a multitude of possible combinations of their characteristics. In some respects discipline as a problem by itself is a meaningless word and does not exist! If the content of instruction and the method of instruction are pitched to the interest and ability level of the student, if he is in good health and knows the purpose of what he is doing, his behavior will be acceptable.

In another respect, discipline is a very difficult problem. When class work has to be pitched to the interests, the abilities, the aims, the ambitions and the backgrounds of thirty-five different persons one finds that, because there is no average person to represent the thirty-five, the ideal teaching can never be achieved. Worst of all, teachers will tell you, the ideal condition for success in classroom learning involve skills and qualities of character on the part of students that simply are not characteristics of the world's attitudes outside the classroom. It is axiomatic that no school training that is inconsistent with the student's personal world of home and community can be successful,—witness our alcohol education for a child of a home with moderate drinkers whom the child loves and respects and would

emulate. The world of the radio, television, organized sport, picture theatre, comic book, trite conversation, mechanized and routine employment, wasteful economics, loosely integrated family life, absence of church attendance and lack of religious insight, drug store paper-backs, lack of home discipline, law breaking, emphasis on pleasure and possessions and gadgets,—what have these to do with the habits and attitudes of good students? They are unrelated to habits of industry, concentration for problem solving, reading books for mastery, attacking problems that are abstract, learning a foreign language, appreciating a good poem for its philosophy or beauty of speech.

Recently in a baccalaureate address the President of Harvard University Dr. Nathan M. Pusey lamented to his university senior class, "A whole culture is displaying signs of illness, despite all that church or college can do to expound the values by which it has lived." How true! And still the school sweats and strains to eliminate brashness, crudities, rudeness, vandalism, delinquency, impoliteness, disrespect for adults and law and authority, disrespect for property rights, sex delinquency, drinking, and other undesirable behavior and seeks to substitute therefor the elements of a gracious Canadian way of life. Schoolmen do not say that the delinquencies do not exist among youth; but we are nevertheless cheered when we see so many to whom the castigations heaped upon modern youth do not apply. There is no doubt in the wide world that the standard of the community penetrates the walls of its schools and has powerful effect upon the effectiveness of instruction in matters of social and personal behavior. Schools in their very nature are susceptible to the morals and standards of the homes; schools in their influence on conduct and behavior follow the adult community rather than mould it.

And yet, I submit, that the agency in our society at the present time that is doing more than any other to give our people a disciplined mind, body, and social outlook and to establish norms of conduct that bind our society in a common culture of a good standard is the common public school. In life as we live it today the influence of the school upon youth conduct is the most positive of any of the social educative agencies such as the home, church, press, radio, theatre, street signboards and countless others. The standards of most schools are undoubtedly more exacting than the standards of most homes in a great many respects. I would have preferred to be able to place the home and the church at the top. Under such conditions, it is misplaced criticism to attack the modern high schools on the grounds of poor discipline.

THE TEACHER AND THE CHALLENGE OF ANTI-INTELLECTUALISM AND DEPRECIATED SCHOLARSHIP

Some of the most serious of all the issues in the current high school have to do with the persons who teach and administer in the schools. Referring again to the authors whom we are using as the formulators of the issues, we read the following: Arthur Bestor (p. 113), "Protected by state requirements which no department (i.e. college of education) but itself can satisfy, the department is able to defy, or even to wage aggressive warfare against, the academic standards of the university . . . Its faculty (staff) manifest a desire to insulate the schools and their teachers from every possible contact with recognized academic disciplines." And on

page 108, "Several academic generations have now passed, and the overwhelming majority of present-day professors of education have received virtually all their advanced training in departments of education." Again on p. 109, ". . . professors of education abandoned any pretence of being independent, academic critics of public school development, and became hard-and-fast partners of the administrative bureaucracy in the making of public school policy. Their role thereafter could only be that of apologists, and rather indiscriminate apologists, for every new program introduced into the public schools."

Dr. Neatby (p. 21) says of senior officials in Canadian education, "Few have achieved a reputation for scholarship in any field." And on p. 35, ". . . the development of an attitude of passive imitation and the cultivation of a skill in appropriating without acknowledgment the ideas and words of others is a major achievement of Canadian educational experts . . . they set the example of bad writing, vague thinking, and slavish imitation. . . ."

Prof. A. M. Lower, of Queen's University tells a convention in Winnipeg this year, "The problem facing schools today is the calibre of the teacher, not the curriculum, nor methods of teaching. It is cruel to say, but there are not enough teachers of high calibre. . . ."

These are samples and are extremely serious challenges that strike at the very roots of the great tree.

The main charge made, then, against teachers and administrators is that they are increasingly illiterate in the intellectual disciplines which constitute the main purposes of education; that is that they have less and less of scholarship in English, history, the natural sciences, and mathematics. Bestor contends that, under these conditions, the day that school people undertook to draft high school curricula in these subjects instead of relying on the university people in these fields was a bad day for education.

The fact of the matter, however, is that our high school teachers must have a University degree in one of these fields and that a goodly number have Honors degrees. To go further and say that they are "anti-intellectual" is unfair to the professional group which probably has a higher percentage of degree holders than any other professional group in Canada, apart from the University staffs themselves. Had the writers limited themselves to their concern that so many educationists are today doing all their graduate studies in Education where they formerly sought advanced scholarship in the humanities and sciences, we could agree with them. There is indeed a strong trend on the part of teachers and administrators to switch their affections in this direction, a trend which many teachers—even as they themselves get caught into the stream—lament. High schools demand teachers with a variety of qualifications, not the least of which must be a high level of rich scholarship and broad culture received from good books and contact with well stored minds; else how can the rich inheritance of our race be transmitted and how can respect for scholarship be engendered among our youth?

"In the kingdom of the blind, 'tis the one-eyed man is king", said Rider Haggard, and that applies peculiarly to the classroom where the teacher is just one jump or one chapter ahead of his class; and that is

just not good enough. You will recall the homely philosopher's comment, "You can no more teach what you don't know than you can come back from where you ain't been."

There is indeed a grave danger that our salary schedules, our promotion policies, our insistence on the idea that success among teachers is to be measured by the distance travelled up the administrative ladder, and that graduate work in Education rather than in the content subjects, has become the 'sine qua non' for the successful teachers or administrator. On this issue we must give considerable consideration to the claims of the critics. The stock-in-trade of the high school educationist must include good scholarship which does not stop at the Bachelor's level.

One more issue respecting our high school teachers is all that time will permit us to discuss even briefly. The challenge is frequently made by the authors and by teachers themselves that the content in the professional courses in Education are inadequate and misdirecting. We are told that they are not challenging intellectually; that they are redundant and repetitive; that their "research" is mainly only pseudo-research, not really making new contributions to knowledge, dealing with subjects that are trite and not of real significance in the world of learning; and that the Universities degrade their scholarship standards in permitting advanced degrees for the kind of scholarship that such courses involve. They regard the schools of education as essentially "trade" schools for training in pedagogy and do not accept them into the faculties of arts and sciences where pure scholarship, knowledge, and learning are pursued. They are not even regarded as professional schools because their business is the teaching of methods only, while the content of school subjects is the content developed and taught in the departments of English, History and Mathematics.

The impartial observer of the situation will probably admit a good deal of the case presented by the critics; even the graduates in the courses in Education themselves are often critical and uncertain on these points. But having said that, one must also recall that the student in the Faculty or School of Education has already spent four years in college classes studying the humanities and the sciences and acquiring the bricks and lumber which he will use as a teacher in high school classes. Surely one year of training specifically in the field of Education is little enough for the novitiate about to enter upon teaching; and surely another year or two years will not be amiss for those among the teachers who are to give leadership and direction to the vast and complex organization that public schooling has become in modern times. The real concern of most educators is that the training period is, on the contrary, too short to permit of adequate practice teaching under good supervision.

We can go along with the critics in their concern that the trend in graduate studies from the content subjects to Education has become exaggerated and that it is to be regretted that it may be drawing in many teachers who would do better for themselves and for the cause of education to study in their teaching subjects; that in the courses in Education there is considerable that is redundant from course to course and that some of the research is inconsequential. But we must equally emphasize that our school personnel have undoubtedly grown in their understanding of the function of the schools in these modern days, have improved their

techniques in the classroom including the appropriateness of the textbooks, and are establishing improved techniques in administration. And we have the Schools of Education to thank for most of it.

SOME ASPECTS OF TEACHER SUPPLY

There is an urgent temptation to discuss the vital matter of teacher supply at the high school level which, in view of the late hour, cannot be given the attention it deserves. Spiralling enrolments of the high schools will put vastly increased pressure on the supply of teachers. The schools will soon feel the impact of the high birth rates of the war and post-war years; we know that by 1961 secondary school enrolments will be 100% greater than in 1953. Teachers in corresponding numbers are not now in sight. If we are to meet the competition of commerce, industry and the better paid and better recognized professions in attracting good young men and women into the schools, both the local and provincial authorities and the public citizenry must do certain things to make attractive the calling of the potential teachers who have devoted four or five or more years of unsalaried time to studies which have prepared them for the task. The public can guarantee itself an adequate supply of teachers any time that it wants to do so,—if it will meet the competitive price.

That price is high.

The public must be prepared to provide greatly increased moneys for its teachers and its schools. Salaries and conditions of work must be at least comparable with good commercial and professional posts. Provincial and local authorities must keep politics right out of the schools; party politics have no place in educational administration, and political expediency must not be a main consideration in making educational decisions and policy. Parents must be determined and indefatigable in their efforts to support their teachers in maintaining their status in the community, particularly in the eyes of the children.

School boards must trust their principals and teachers, recognize their experience and training in a highly technical and difficult field, and keep their hands off the internal administration of the school and its pupils unless the situation is clearly heading toward real deterioration. No attempt on the part of any person or any authority should be made to throttle the public expression of any professional opinion by a professional educator. Top level administrators must trust their subordinates, recognizing the professional right of the teacher to solve his problems of instruction and discipline in the light of his own particular genius and skills and interfering not because the teacher's practice may be different from their own but only because it is clearly failing to achieve its purpose.

Organized public education today is a huge system where the slogan "Education is everybody's business" seems an invitation to everybody to put in his oar, where every citizen has in his lifetime had some contact with the schools and at the same time feels conscious of his democratic rights of free discussion, where laymen in great numbers are elected to exercise authority over experienced workers in a highly specialized field. Under these conditions there is untold opportunity for damage to those on whom the public must rely for the conduct of their schools. No person in our local communities (including those in political life) is subjected to the scrutiny and criticism that falls on the teacher; every dining room

table in the district is a forum where both big and little minds take him or her apart and put him together again; every home and school association is a court of judgment where many a time criticism has broken the heart or soured a good teacher. It is not surprising that sensitive young men and women look twice at teaching as their life work.

Finally, salaries and general physical living conditions must be made attractive. The man of even the best goodwill toward teaching has undeniable and proper ambitions for a good home and good opportunities for his wife and children; the girl graduating from Grade XI is strongly tempted to enter at once upon employment that is well paid and for which it is not necessary to attend school for two further years in order to qualify for what seems to her to be a very few short years before marriage; young men and women from communities with rich cultural and social opportunities can understandably be skeptical of the advantages of moving into less favorable settings. In the main, teachers have emancipated themselves from the day when they were expected to live like church mice, "wanting but little here below, nor wanting that little long". Only the best are good enough for the education of our children; let our people do the things that will bring the best into teaching them. Verbal persuasion of our young people will not convince them if our actions speak not even louder than our words.

OTHER ISSUES OF SECONDARY EDUCATION

Secondary schools have other issues that need to be discussed, but time restricts the number that can be brought to you today, just as it has restricted fuller and adequate treatment of those that have been included in this paper.

What should be said about the overcrowded curriculum with its attendant problems of standards of achievement, acceleration and non-acceleration, homework, number of subjects for examinations, effect on extra-curricular education, cultivation of the arts on which examinations are not held, the four-year high school?

What should be said of the issue of the larger school district in elaboration of the thesis that Manitoba with its multiplicity of small high school units will never meet the real needs of thousands of its youth—never.

What should be said of the debate on centralization or decentralization of authority to permit local initiative, with concomitant problems of central examinations, promotion procedures, exemptions from examinations, construction of curriculum, the finding of a common denominator for the smaller and weaker districts and the larger and stronger districts.

What should be said about compulsory school attendance for older teen-agers? Are our current social theory and realistic educational practice consistent?

What should be said of the place and methods of religious and moral education in the public high school? Are the public schools amoral and are they godless?

Each of these is an important issue, and could provide stimulating discussion, ready for an airing at the present time. Indeed when was there ever a time when all such issues must not be under constant and continuous review? But one must refrain.

CONCLUSION

And so to conclude,—

There is today an underlying concern, deep and real, on the part of the public and of educators that education in Canada should retain all its old established values while adjusting its content and method to meet the new functions imposed upon it by a new society that seeks to fulfil a destiny within the framework of a modern democracy. It must serve the needs—of tremendous variety as they are—of all kinds and sorts and conditions of people. In doing so thoughtful people want that we should avoid drifting into changes without awareness of what is at stake. They do not want education to run off at any tangent along paths that lead to triteness, depreciated scholarship, or to an emasculated Canadian people who will be any less sturdy and rugged than that of the pioneer generations of this country; generations which in their time had a profound respect for strong character, industry, learning, and a sound balance between the intellectual, the spiritual, and the physical in life.

We want our children to be under teachers who will bring them the wealth of the knowledge of the ages, while cultivating the insight and the wisdom so necessary for its use not only for their own beauty but for the great good of mankind. Because life is insistently crowding them forward they have no time to spend on training that is trite or insignificant.

We who are deeply engaged in education welcome whatever evaluation of our work comes our way when it is sincere, when it comes from those who really know whereof they speak, and when it indicates sane roads toward improvement. Such critics, whether rightist or leftist, are to be thanked when they set out the dangers inherent in modern trends. In the last analysis, I am convinced, the Canadian people will demand and Canadian educators will provide an educational program at neither extreme because they know that, as usual, when extremists state their cases the truth lies somewhere in between.

True indeed is it that the truth of today is provisional; it may be modified tomorrow. In the modifying we must hope that we become not lost amid the conflicting claims of education as seen by a Locke, a Livingstone, a Dewey; of education as an intellectual discipline and education for specific practical purposes; of education for personal culture and education for social competence; of education in the humanities and education for vocations; of education with a religious core and education basically secular; and so on and on. Controversy and criticism can be the hammer and the anvil on which in heat and tension can be shaped an educational organization and program that will be strong, beautiful and fit to its purpose. The knowledge that there are issues to be met and mastered can be the stimulus that keeps educators moving forward and abreast the changing needs of youth and schools.

SCIENCE INTERESTS AT THE JUNIOR HIGH SCHOOL LEVEL

by DR. A. L. DOUCETTE

Director, Calgary Branch, University of Alberta



The purpose of this investigation was to design a twelve-year general science program for Alberta schools based on student interests.

Although the curriculum range under investigation extended from grade one of the elementary school to grade twelve of the senior high school, the detailed phase of the investigation into student interests was confined to junior high school grades (seven, eight and nine).

The Problem of Interest:

The study aimed to discover the interests of junior high school students in the field of general science as a basis for setting up a general science curriculum. Insofar as the study was

concerned, the interest rating and degree of significance for the curriculum of eighty-six science items was established. In addition, pertinent information was obtained from students and teachers regarding interest in approximately 250 supplementary items or topics of science.

An interest may be defined as an aroused attention or concern on the part of an individual. An educational psychologist defines interest as "an emotional state of liking for, desire for, tendency toward an object or process."

General Science Education for all Youth:

In a democratic society all youth should be given an opportunity to experience basic truths of science, and to develop understanding of, and practice in, the scientific method of inquiry and thought. The Harvard Committee of 1945 report states that below the college level, virtually all science teaching should be devoted to general education.

Although science has long been recognized as a pathway to truth, and despite the tremendous strides that have been made in transforming living since the middle of the eighteenth century, science as a school subject was slow in making its appearance in the school curriculum.

As numerous developments in the scientific world continued, the curriculum expanded to such an extent that special science education for the future scientist became the only type of instruction offered. A general approach to science learning for the majority of students who did not plan to enter higher or university education had not received the attention of curriculum designers and of curriculum departments until very recently.

General Observations Regarding Science Curricula in Canada and the United States:

A summary of observations from a survey of Canadian and United States curricula follows:

- (1) Over-all patterns or planned designs of a science program from grade to grade are not generally common.
- (2) There is a tendency to adhere to traditional nature science studies arranged seasonally.
- (3) The topical method of organizing curriculum content is prevalent.
- (4) General science in junior high school is not well articulated with the science of the elementary and senior high school grades.
- (5) The specific sciences of physics, chemistry and biology are commonly found in all senior high schools.
- (6) There is no evidence in Canada of a trend toward an over-all pattern or design for the treatment of general science for all youth.
- (7) Over-all patterns which are being experimented with in the United States are limited in the number of grades covered.

Scope of the Problem Under Investigation:

The study aimed to discover the science interests and experiences of children as a criterion or factor in science curriculum design. The forty-sixth yearbook of the National Society for the Study of Education states that:

"In spite of studies of science interest with children and adolescents . . . relatively little has been done with the problem of science experiences suited to the needs of young people of varying maturities".

In the light of modern psychology which emphasizes the importance of gearing the science curriculum to student needs and interests, it seemed practicable to make a detailed study of the self-expressed science interests of students and also to try to discover the expressed judgment of teachers regarding placement of science content in the curriculum of the junior high school grades. The problem investigation, therefore, consisted of four main undertakings:

- (1) The discovery of student needs and interests in the field of general science at the junior high school level by means of a specially designed instrument or measuring device.
- (2) The discovery of teacher judgment regarding grade placement of general science topics in the junior high school grades, by means of a corresponding measuring instrument.
- (3) The design of an over-all science pattern for a twelve-year curriculum based on discovered student interests which might furnish common-to-all learnings for youth as they progress sequentially from grade to grade.
- (4) The preparation of a detailed junior high school program in general science based on student interests.

The Instrument used in this Study for Discovering Student Interest:

Admitting that learning takes place best when the learner is interested, and that the avenue of interest is a sound approach to the educative process, it was felt that the problem of pupils' science interests at the junior high school level should be referred to the students themselves for their own evaluation. Despite the limited life experience of grades seven, eight, and nine students, it is assumed for purposes of this study that the self-expressed views of classroom personnel is a significant source of data. In order to discover the self-expressed interests of students in science, a special instrument was designed for use in the study.

How the Instrument was Designed:

The key instrument used was a student interest inventory. In order to avoid aimless and careless wandering of student opinion, eighty-six specific science items under eight groupings were chosen, each item to be rated by students according to their own degrees of interest. The selected items were based on eight major topical areas which constitute a modification of those proposed by Gerald S. Craig, an outstanding investigator in the field of science curriculum.

The eight groups or major interest areas in the inventory, and the distribution of science items under each are summed up on this page:—

TABLE 1:
THE EIGHT GROUPS OR INTEREST AREAS IN THE INVENTORY AND THE
DISTRIBUTION OF SCIENCE ITEMS UNDER EACH.

GROUP NO.	HEADING OF GROUP THEME	NO. OF ITEMS IN THE GROUP THEME
1	Why we study science	1
2	The earth in the universe	7
3	The solar system	8
4	Adaptation and interdependence	10
5	Variety of life forms	12
6	Life and health	12
7	The earth's crust	12
8	Machines, magnetism and electricity	24
Total		86 items

The items of the inventory were distributed in such a way as to include the following types of topics: physical, biological, physical-biological, physical-social, biological-social, and physical-biological-social.

The inventory consisted of four pages of science items, and a fifth blank page without items, which permitted the students to express spontaneously those items of science interest which were not included in the main body of the inventory.

The columns for scoring degrees of interest in the eighty-six items of the inventory were tabulated on the right side of the form where student interest ratings were marked on a four point scale, namely, **Very Interested**, **Quite Interested**, **Fairly Interested** and **Not Interested**. These ratings were referred to in the data in abbreviated form thus: V.I., Q.I., F.I., and N.I. respectively.

Data Obtained from the use of the Instrument:

The student interest inventory was used to obtain data from junior high school science students in a middle-class socio-economic section of Calgary's city population.

How Topics and Items of the Teacher Judgment Inventory Were Selected:

The "teacher-judgment-inventory", containing the same topical groups and items of science as that for the student interest inventory, was the second instrument used in the study. On the right-hand side of the teacher judgment inventory, spaces were provided for expression of opinion by teachers regarding the appropriate grade allocation for the eighty-six science items of the student interest inventory. The items were listed in the first four pages of the inventory, the fifth page being left blank and permitting teachers to suggest additional science topics not included in the main body of the inventory, but which they considered suitable and important for junior high school students.

It was assumed that teachers of several years experience in teaching junior high school science have acquired sufficient understanding of pupil capabilities as to be able to express reasonably accurately a judgment regarding the allocation of science items in Grades seven, eight, and nine.

Hypotheses to be Validated in Regard to Student Interests:

On the premise that general science instruction should be geared to student needs, the following hypotheses were formulated:

(1) Propositions for Proof:

- (a) Self-expressed interests in general science items are sufficiently discriminatory to render it possible to detect degrees of interest of boys and girls in junior high school science.
- (b) An instrument can be designed which will measure interest discrimination in science items.
- (c) The self-expressed science interests of boys and girls in junior high school may serve as a basis for curriculum planning and design.
- (d) Students show a disparity of interest which is caused by several variables or factors.
- (e) There is a positive relationship between high-degree-of-interest in science items and those topics or themes of study selected by curriculum authorities in the field of general science.

(2) Corollary Questions Arising from the Propositions:

The five basic propositions to be proved give rise to certain questions which are considered important to the study. These questions, to be answered in terms of the data gathered, are as follows:

- (a) Does the student interest inventory possess validity?
- (b) Are the student interest inventory results significantly affected by the recency of development of the science items?
- (c) Are the student interest inventory results likely to be affected by the "allure" or vividness of certain items which may be worded in an appealing way?

- (d) Are the student interest inventory results likely to be affected by the abstract nature of the item?
- (e) Are the student interest inventory results likely to be affected by the vicarious nature of the item?
- (f) Are the student interest inventory results likely to be affected by the variation in sex interests in the field of science?
- (g) Are the student interest inventory results likely to be affected by locale of the item?
- (h) Is it possible to discover a cluster of interests which will be useful in setting out themes, areas, or units of study in a science curriculum?

The Population Sample for Student Interest Experimentation:

The Calgary city schools used in the experiment were (i) the University Demonstration School (ii) The Balmoral Junior High School. The classes represented a sampling of the total Alberta junior high school population of the province. The inventory was administered to 457 students distributed by grade and sex as shown in the table below:

TABLE 2:
**DISTRIBUTION OF GRADE AND SEX OF STUDENTS WHO
PARTICIPATED IN THE EXPERIMENT.**

Grade	Sex		Total of Boys and Girls
	Boys	Girls	
7	84	83	167
8	68	82	150
9	65	75	140
Totals	217	240	457

Administering the Student Interest Inventory:

The inventory was administered at the end of the school year to students in class, and instructions were read by the science teachers of each particular room. No directions were given by the teachers other than to suggest that the students give careful thought to their decisions. The function of the inventory was to disclose the degree or pitch of science interests in the list of eighty-six science items.

In order to objectify the scoring, the teachers were advised to pass out the inventory blanks to the pupils, and after reading the instructions aloud with pupils, following directions on the inventory front page, the students completed the scoring in their own time. The purpose of the investigation was not specifically disclosed to the class room teachers. In this way, no undue conditioning of students or of teachers resulted.

A uniform set of directions for all students in all three grades prevailed. These instructions were as follows:

Instructions:

Indicate your science interests by placing numbers from one to four in the column at the right for each of the science items listed.

Number each topic in only one of the columns to the right and show your "interest-preference". Place number one in the first column if you think you would be **Very Interested** in studying the topics; place number two in the next column if you think you would be **Quite Interested**; place number three in the third column if you think you would be only **Fairly Interested**; number four is placed in the last column to the right if you would be **completely disinterested** in the topic.

Be sure to number all topics. Do not leave any out. When you have finished your numbering of the topics, hand your answer sheets to your teacher.

The Basic Data Sheets:

Each student was instructed to score every one of the eighty-six items on the first four pages of the mimeographed forms. The recorded results on the inventory data sheets revealed each student's degree of interest in the various items on one day only in the school year at the end of May, one month prior to the closing of the school term.

The room teacher advised the students to add in the blank spaces provided on the fifth page of the inventory, any additional science topics in which a special interest was evinced. Tabulated summaries were made of the eight groups of themes covering the eighty-six numbered items. The responses to the inventory were tabulated by grade and by sex. Responses were shown separately for boys of Grade seven, eight, and nine, and for girls of Grade seven, eight, and nine. The grand total of responses of boys and girls combined, for the whole junior high school range, was summed up.

Analysis of Data on Student Interests:

1. Coding of Student Responses:

In referring to the "item-response" for any grade or group of grades, the following coding scheme was employed:

(a) General Coding Scheme:

Item No.: No. of students interested (Sex-grade): (Degree of interest)
Total students responding

(b) Coding Formula:

$$I: \frac{n}{N} : (S. G.): (D)$$

Where I is "item-number", n equals number of students interested, N equals total population of group; S equals sex of students responding; G equals grade or grades of group responding; D equals degree of interest (VI, QI, FI, NI).

Example of Coding Responses:

15: 218/457: (B.G.: 7-8-9): (VI) means that for item fifteen of the student inventory, 218 out of 457 boys and girls in Grades 7, 8, and 9 stated that they were **Very Interested** in the item.

High and Low Interest Zones of Student Response:

The high and low interest zones were based on the combined VI and QI columns, and the combined FI and NI columns respectively.

Visual summary charts were prepared in order to indicate at a glance the "high-interest-zone" and "low-interest-zone" responses.

Interpretation of Visual Summary Charts Used in the Investigation:

Shadings in the visual summary charts were based on certain percentages or degrees of interest. The percentages were proposed arbitrarily by the writer in order to permit comparisons to be made in the degrees of student interests in the various items, and also to compare the relative intensities of varied interests in any one specific item.

The shading values in the visual summary chart permitted a quick general interpretation of the item response in terms of potential evaluation of the item for curriculum purposes.

Objective Appraisal of High and Low Interests in the Student Inventory Items:

In order to arrive at a more objective appraisal of the science items in the student interest inventory, percentages of response to the combined VI and QI ratings were computed. Slide rule accuracy, correct to the nearest tenth-of-one-percent, was considered sufficiently exact for this purpose.

Basis for Establishing Significance or Non-significance of Junior High School Science Items in the Student Interest Inventory:

It was necessary to arrive at a complete scale of values in order to appraise the degree of significance for evaluation purposes of each item in the student interest inventory. The appraisal scale to determine significance of science items for possible curriculum use based on self-expressed degrees of interest is given below:—

TABLE 3:

SCALE OF VALUE TO DETERMINE SIGNIFICANCE OF THE SCIENCE ITEMS FOR CURRICULUM PURPOSES BASED ON "VI+QI" DEGREE OF INTEREST.

MEDIAN AREA Median for 457 boys and girls combined, in grades seven, eight, nine is: 63.4% response	Value scale for appraising science items	Student "VI+QI" response: 457 boys and girls in grades 7-8-9	MEDIAN AREA Median for 457 boys and girls combined, in grades seven, eight, nine is: 63.4% response
	VERY SIGNIFICANT or HIGH INTEREST VALUE	75% and above	
	SIGNIFICANT or ABOVE AVERAGE INTEREST VALUE	65% to 74% inclusive	
	MEDIOCRE or AVERAGE INTEREST VALUE (Item probably worth retaining)	55% to 64% inclusive	
	DOUBTFUL SIGNIFICANCE or BELOW AVERAGE INTEREST VALUE	45% to 54% inclusive	
	UNSUITABLE or LOW INTEREST VALUE	Below 44%	

The classification of values in Table 3 shows that if the "VI plus QI" percentage for any item in the column for 457 boys and girls is 65% or more, the item is appraised as significant or very significant. For an item to be significant, the lower percentage limit of significance is approximately a two-thirds response to the "VI plus QI" rating. If the "VI plus QI" percentage response is 75% or greater, the item is rated very significant or of high interest value; if the response is between 65 to 74%, the item is rated significant or as possessing above-average value; if the item rates between 55 and 64%, the item is rated as mediocre or of average interest, but probably worth retaining in a science curriculum; if the response is from 45 to 54%, the item is rated as of doubtful or below average value; if below 44%, the item is rated as unsuitable or below average interest at the junior high school level.

Distribution of Science Items Based on the Significance or Suitability for Curriculum Purposes:

As far as this study is concerned, the distribution of science items according to significance value for a junior high school science curriculum is shown in the table below:

TABLE 4:
APPRAISAL VALUE OF THE SIGNIFICANCE OF STUDENT INTEREST
INVENTORY ITEMS FOR CURRICULUM PURPOSES.

Scale value of items	No. of items
Items of high degree of interest	4
Items of above average interest	34
Items of average interest	36
Items of below average interest	11
Items of low degree of interest	1
Total	86

How Individual Items of the Student Interest Inventory were Appraised for Curriculum Purposes:

To illustrate how each item was examined for final appraisal value, the method of evaluating Item No. 1 of the inventory is now dealt with:

Item 1: Why we Should Study Science in a Modern World

The data revealed that approximately 75% of boys and girls in grade seven expressed **high interest** in this item. The degree of interest falls off in grades eight and nine but there is a sufficiently high degree of "VI plus QI" response to warrant a consideration of the item in these two grades. Item one of the student interest inventory, would therefore be rated as **very significant** for grade seven boys and **significant** or of **above-average** interest for grade seven girls. Based on the average responses for **all** Grade seven-eight-nine boys and **all** grade seven-eight-nine girls, this item would be appraised as of average value and deserving of retention in a science curriculum.

Rank Order of Student Interests in all Eighty-six Items of the Science Inventory:

The rank order of high to low interest for all eighty-six items of the interest inventory was drawn up. This distribution was obtained by plac-

ing in order the percentage response to "VI plus QI" interest ratings. The item of lowest rank for 457 boys and girls is **Tides**. The item of highest rank interest is the **Science of Living in the Mountains**. It would appear that there is a positive correlation between the degree of interest in an item and its geographic locale in relation to the living environment of the student. Alberta children of the Western Foothills find that mountain living is real to them. **Tides**, on the other hand, lack reality because such physical phenomena are far removed from their local and immediate environmental experiences.

Spontaneous Expression of Student Interests in Topics Additional to Those Listed in the Student Interest Inventory:

Students were asked to mention additional specific science interests which were not included in the eighty-six listed items. These spontaneous and self-expressed interests were arranged alphabetically by grade and sex and are of considerable interest. Such additional interests must be given consideration in planning a curriculum for junior high school science.

Even in spontaneous interests, the technical and physical science items predominate for boys, while the biological and natural science items predominate for girls. It is noteworthy, however, that because of modern developments in science, girls display a spontaneous interest in such items as plastics, atom bombs, jet propulsion, and the like. This was especially true of grade seven and nine girls in this investigation.

Additional Observations Regarding Student Responses to the Inventory:

(1) Responses of Students According to Sex:

Findings in this study are consistent with several past studies of student interests in science. Incidental to the investigation of science interests of junior high school students, it was discovered that girls have a wider range of interests, and a lower degree of pitch of interest, than boys, but girls are more interested in the biological than in the technical and physical phases of science.

(2) Responses of Students According to Grade Level:

Insofar as the data gathered are meaningful, student interest in the item of the inventory showed a **continuing** interest from grade to grade. This is an indication that science topics should be treated as a "continuum", and not as a matter of definite grade allocation.

It is apparent from the results of the inventories that there is a need for varied stress and treatment of topics to allow for differences in sex and in general ability of individual students.

Concomitant Observations Incidental to this Study:

The following incidental observations were made:

1. A **salesmanship** or "allure" wording of science items in an inventory or questionnaire may condition student response.
2. A **current events** science item of recent development will bring a high degree of response from boys and girls.

3. A **locale** factor which ties a given science item to students' direct or immediate experience, results in a high degree of response interest.
4. The **time of the year** in the school program when administering the interest inventory may affect the degree or pitch of student interest.
5. A **halo effect** may result in a special emphasis or hobby interest of the teacher.
6. The **socio-economic status** of the student population may affect the response to a questionnaire or inventory in science.

Comparative Summary of Top Interest Items in Science in this and Other Studies:

The summary of comparisons between the present study of interest and those made by certain investigators some twenty years ago are as follows:

1. **Electricity and its related phases** rank high in interest in all studies. In the present investigation the high interest element is much more characteristic of boys than of girls; seven electrical items appear in the upper ten highest rank positions for grade seven boys, three for grade eight boys, and nine items for grade nine boys; no specific items on electricity occur in this range for any of grade seven, eight, or nine girls.
2. **Modern communication devices** is an item that ranks high in all studies. **Radio** ranks high, with boys' interests being higher than girls'. It is noted that this item is of generally high interest to boys and girls in all three grades of junior high school.
3. **Stars or constellations** constitute an item that is less interesting to boys than to girls.
4. **The moon and earth** rank high in interest in past studies. In the present investigation, the topic of the **moon** does not appear in the first ten of the top list for either girls or boys.
5. **Plant and animal** interests rank within the first ten items in this study.
6. **This study reveals the following interest for boys and girls not found in past studies:** science of mountain living, science of plains living, science of coastal living.
7. This investigation reveals that the majority of high interests for boys are in technical and mechanical items; the majority of high interests for girls are largely related to natural and biological science.

This study differs from previous ones in revealing a very considerable amount of specific high interest in both biological and physical science on the part of boys and girls in junior high school. For this reason, such studies as: variety of life forms, adaptation inter-dependence, health and safety, merit stress in a grade 7-8-9 general science curriculum.

This study further reveals the need for a different degree of emphasis for boys and girls on such topics as machines, electricity, and magnetism. Departmental examinations and other evaluation techniques should provide optional arrangements to allow for sex differences in science interests.

In the present investigation, the items of high interest are (i) more analytical and (ii) more socialized than in past studies. A wording of items to show their social implications is considered to be a significant contribution of the present study.

Some investigators have criticized studies which employ the questionnaire or inventory technique on the grounds that responses were influenced because the topics were suggested to the students, or, again, that there may be a relationship between a child's interest and his intelligence. One investigator has found that no significant change of interest-rank resulted because specific topics were placed in the sample questions or lists given to the student.

In the present study, provision was made in the inventory for supplementary topics where students were given an opportunity to express special interest not suggested in the main body of the inventory. A sampling of grade seven boys' interest showed a marked concern over such up-to-date items as: aeronautics, atomic bomb, jet propulsion, radio and television. It is manifest that youth interests keep pace with our scientific and technological developments.

This study shows that student interests represent at least one valid basis for determining curriculum content. This conclusion is in harmony with a quotation by Quillen and Hanna, in *Education for Social Competence*:

"To use interests as one basis for determining sequence seems a legitimate procedure. Thorndike has pointed out that more work is done when the student is interested; that interests, as satisfying or pleasurable stimuli, are aids to learning."

Justification of Criteria as Proposed in this Investigation:

(1) Criterion for Reconciling Student Interests as one Means for Selection of Curriculum Content:

The data collected for this study do not purport to reveal or appraise all the conditioning factors that affect student response to interest in general science topics. There are many variables which affect these interests, some of which could be controlled if this experiment were repeated. Regardless of these variables however, the data have revealed that degrees of interest do exist and that these degrees conform, to a marked extent, with topics selected by experts in the field of science curriculum. It is therefore felt that the criterion of student interest as one of the basis for curriculum contents selection is justified.

(2) Criterion of Teacher Opinion for Reconciling Grade Placement:

The data collected in this study reveal that teachers are not prepared to allocate topics to a specific grade, but tend to spread topics in science over several grades. This suggests their recognition of a spiralling or cumulative principle in handling science topics. In some cases, teachers allocated topics to specific grades but there was little or no uniformity in the recommended placements.

(3) Criterion of Expert Opinion in the Field of Science Curriculum:

A high degree of relationship was found to exist between items of student interest and those junior high school topics proposed by the curriculum expert.

Conclusions to the study:

1. **Verification and Documentation of the Five Basic Propositions Pertinent to Students' Science Interests:**
 - (a) Self-expressed interests in general science items are sufficiently discriminatory to render it possible to detect degrees of interest of boys and girls in junior high school science.
 - (b) An instrument can be designed which will measure interest discrimination in science items.
 - (c) The self-expressed science interest to boys and girls in junior high school may serve as a basis for curriculum planning and design.
 - (d) Students show a disparity of interest which is caused by several variables or factors.
 - (e) There is a positive relationship between high degree of interest in science items for those topics or themes of study selected by curriculum authorities in the field of general science. The propositions set out to be proved have now been validated by the evidence obtained in this study.
2. **Verification and Documentation of the Eight Corollary Questions Arising out of the Hypotheses Pertinent to Students' Science Interests:**
 - a) **Corollary 1:**

The student interest inventory instrument possesses validity. As far as this study is concerned, the inventory instrument measures what it purports to measure namely the degrees of self-expressed interest in a selected list of science items. The instrument was not used to measure reliability or consistency of student interests since this phase has already been investigated by other research workers.
 - b) **Corollary 2:**

The student interest inventory results are significantly affected by the recency of development of the science item. It was evident both in the responses to the selected list of science items and in the additional self-expressed science interests that topics such as the telegraph, radio, modern transportation, television, jet travel and the atom bomb are of especially high interest significance to junior high school boys and girls.
 - c) **Corollary 3:**

The student interest inventory results are affected by the "allure" or vividness of certain items which happen to be worded in an appealing way. It is evident that a salesmanship factor for certain items may have affected the student response. Items entitled "sky color", "eclipses—a marvel of nature", appear to have a special appeal because of the form or wording of the item.
 - d) **Corollary 4:**

The student interest inventory results are affected by the abstract nature of the item. The study reveals that such items as "matter",

and "force", lack interest appeal, no doubt due to the fact that they are abstract in type. One may contrast the interest response to such a concrete item as the "automobile and steam engine". This latter item has the high rank interest of 78 out of a total of 86 items, while "matter" ranks in the second lowest placement, and "force" in fourth lowest placement.

e) Corollary 5:

The student interest inventory results are affected by the vicarious nature of the item. The study reveals that the interest-rank for "tides" is the lowest for the 86 items. Item 37, "How the Elevator Man Tests Seeds for Quality" has a low rank order of ten, indicating that such an item is outside the experience of the city-reared youth in this experiment. Item 60, "The Science of Living in the Mountains" has the highest appeal of all the items. This latter item is of interest to Calgary, Alberta youth because of an immediacy factor of living in the foothills.

f) Corollary 6:

The student interest inventory results are affected by variations in sex interest in the field of science. Item 78, "The Electric Circuit", and Item 81, "Electric Storage Cells and Batteries", have high interest for boys and low interest for girls.

g) Corollary 7:

The student interest inventory results are affected by locale of the item. It is evident that there is a high degree of interest in Item 57 (Alberta's Oil), and in Item 39 (Canada's Plant and Animal Resource), and in Item 58 (Canada's Minerals).

h) Corollary 8:

It is possible to discover a cluster of interests that will be useful in setting out themes or unit studies in a science curriculum. This study reveals that in the upper or high-interest sections of the tabulation, such clusters as the following suggest themselves: adaptation of living things, machines, magnetism and electricity, variety of life forms, earth change, earth in space, the universe, the solar system. These clusters may constitute theme studies or areas of science interest for investigation by junior high school students. Boys show evidence of an interest cluster centering around a topic like "machines magnetism and electricity"; girls are interested in the cluster like "constellations"; boys and girls are jointly interested in such a cluster as "the universe at large".

The eight corollary questions have been validated by the evidence obtained in this study.

A Summary of Conclusions:

- A. Conclusions based on the findings from data on students' self-expressed science interest at the junior high school level:
 1. There is a wide range of student interests in science at the junior high school level.

2. Students are generally very interested or quite interested in most of the eighty-six science items in the student interest inventory.
3. Boys are generally more vividly interested in science than are girls.
4. Boys are particularly interested in mechanical, technical, and physical science, and also in the scientific resources of the earth's crust.
5. Girls are particularly interested in such biological items as the parental care of young, life growth, life in regional areas, and variety of life forms.
6. Junior high school students, in general, are interested in both biological and physical science.
7. Girls display a wider range of science interests than boys.
8. Student interests in junior high school science vary with grade level, sex, and type of science item.
9. Boys and girls in the western Canadian prairies are either only fairly interested or not interested in such science items as tides, matter, community protection of food and health, force, uses of heat energy, standard time.
10. Boys and girls on the western Canadian prairies are either very interested or quite interested in such science items as: science of living in the mountains, how animals protect themselves, how the telephone, telegraph and radio send messages, color in the sky, parental care of young, kinds of living things, how plants protect themselves, science of communication.
11. In all three grades of the junior high school, there is a consistently continuous distribution of interest in the physical and biological items of the inventory. Interests in specific items are not rigidly located in any one particular grade, which suggests a need for cumulative spiralling of science topics from grade to grade.
12. Of the supplementary or spontaneously expressed science interests as listed by junior high school boys, approximately 45% of the items deal with mechanical and electrical development of our culture.
13. Of the supplementary or spontaneously expressed science interests as listed by junior high school girls, approximately 40 to 45% of the items dealt with the technical phase of our culture, while approximately 30 to 35% revealed biological science interests.
14. Such up-to-date science items as radio, chemistry, plastics, atom bomb, television, uranium, aeronautics, were commonly expressed as spontaneous interest items listed by both boys and girls.
15. Student interest in science items is one valid criterion for the selection of science content. This criterion must be supplemented by the judgment of the expert in the field of science curriculum in order to include those items of future adult need which may not be realized by the student at his current level of maturation growth.

16. The social implication of science items is meaningful to junior high school students.
- B. The following conclusions based on the findings from the data on teacher judgment regarding grade placement of junior high school science items have been established.
 1. Grade placement of the eighty-six science items was uniformly consistent for only two of the items.
 2. Nearly 75% of the items were repeated in all three grades of the junior high school, suggesting the need for sequential or spiralled treatment of science topics.
 3. There was little or no suggestion that any of the eighty-six items were unsuitable for junior high school pupils.

C. Conclusions partly established in this study:

The following conclusions are accepted as opinions of competent authorities:

1. Teacher judgment in regard to grade placement of content is a helpful consideration for the curriculum designer but not highly reliable.
2. There is a positive correlation between the judgment of the specialist in grade allocation and selection, and the interests expressed by students in a given science item or topic.
3. Science topics or themes should be treated as continuous from grade to grade and not be allocated definitely and finally to a specific grade level.

D. Conclusions accepted on faith pending further investigation:

The following conclusions were postulated for purposes of this study:

1. Student interests are sufficiently permanent over a period of time and may be considered significant for curriculum purposes.
2. In our modern mechanized age, the science interests of students in rural areas now approximate those of urban students to the extent that a single uniform science curriculum pattern, with a flexibility of design, will answer the needs of both types of students.
3. In this technological era of rapid communication and of immediate contact with the world at large by means of radio and fast air travel, the regional differences in Alberta as between prairie, parkland and bush areas do not necessitate a vastly different curriculum for children in these various physiographic zones.
4. In order to design an over-all curriculum in science for Alberta schools, it is assumed that the clusters or themes of interests of elementary and senior high school students are similar to those of junior high school students, the only significant difference being a matter of degree and not of kind.
5. Vocabulary of science items in the inventory as used in this investigation, although not checked against standard word lists, presented no problem in regard to word difficulty.

In conclusion, the primary thesis of the study is upheld, namely that science interests are discoverable and may be considered legitimate and

valid as one basis for curriculum planning or design. In other words, pupil interest is one criterion for the selection of course of study content in science. This study developed an instrument to discover these interests.

There is sufficient agreement in this and in other studies to warrant the statement that student interests cannot be neglected in planning a curriculum.

Major themes or interest clusters become typical in proposing problems and sub-problems for study and research for junior high school boys and girls. Such themes should form the scope of the school program because they are rooted in the needs and interests of youth.

It may be concluded that the problem of student interests is still very much alive in educational circles, and will, no doubt, continue to be of concern to the educator in the future. Future studies of pupil interest and maturation will help the curriculum designer in allocating content to various grades.

Implications of the Investigation for a General Science Curriculum Design:

In planning the curriculum based on conclusions to this study, the discovered facts point to the following proposals which should be considered in designing a science curriculum:

- (1) The curriculum must provide for a **wide range of interests** for boys and girls.
- (2) A curriculum based on student interests must provide for a **flexibility of topics** to allow for interest differences of boys and girls.
- (3) The curriculum must provide for a **balance** of physical, biological, physical-social, and biological-social items in science because of variations in interests.
- (4) The curriculum must provide for **challenging items** for those boys and girls who possess a very high degree of interest in certain special topics.
- (5) The curriculum must provide for learnings in a number of science **themes or areas of scientific living**. These areas or clusters of interests will form the pivotal points for the curriculum pattern.
- (6) The total curriculum must provide for **horizontal articulation** or sequential growth in science interest in a given topic from grade to grade. That is to say, a spiralling or cumulative principle must apply in which wider and deeper study of a topic is provided for at progressive grade levels.
- (7) The total curriculum must provide for **vertical articulation**. Although this study was confined to grade 7-8-9 levels, in designing the total curriculum, research findings indicate that junior and senior children are interested in the biological and physical aspects of science.
- (8) The curriculum must provide for **students' spontaneous interests**. This study reveals special supplementary items which were additional to the science inventory.

A Proposed Double-track Plan for General Science Education in Senior High Schools:

Although some youths begin to display specific interests early in their senior high school years, it is felt that in the secondary area, there is an

urgent need for a general education core of common learnings for all students. General science should make a generous contribution to the common education of all students in the junior and senior high school. A double-track plan will permit students to take advantage of a general education program of common learnings and at the same time provide for those students who possess special interests preparing them for vocational schools and for the university.

If general science education is to be made available to all youth, it then becomes apparent that subjects like physics, chemistry, and biology, become the problems of the specialist student rather than the generalist student. It is, therefore, proposed that general science education should become part of a common core program. This proposal suggests the need for a two-track curricular organization in the senior high school and a single-track science organization in the junior high school.

Further Investigations Recommended as a Result of this Study:

It is recommended that as a result of this research study, the following pertinent investigations offer potential fields for further research:

- (a) The changing interests of students from the beginning to the end of a school year in the field of general science.
- (b) The effect of the science teacher's emphasis on student interest.
- (c) Variation in science interests of rural and urban youth in this age of rapid technological advance.
- (d) The variation in science interests of youth in various physiographic regions of Canada.
- (e) The variation in science interests of youth in Canadian areas of varied economic development.
- (f) The constancy of themes of science interests (scope) in the elementary, junior high and senior high school.
- (g) A program of general science education for senior high school youth.
- (h) Resource handbooks for the general science program.
- (i) Evaluation of the new Junior high school science program proposed in this study.
- (j) Pupil evaluation instruments in science for use at the end of the junior high school period.



This Trade Mark assures you of Quality and Service. We have been serving Canadian Schools for over Seventy Years — Consult your nearest Branch —

MOYER SCHOOL SUPPLIES LIMITED

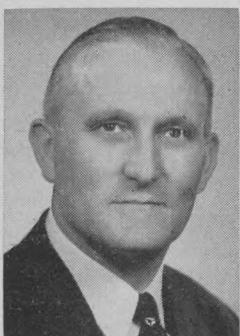
315 William Ave., Winnipeg 2, Man.

Moncton — Montreal — Toronto — Winnipeg — Saskatoon — Edmonton

ATTITUDE OF HIGH SCHOOL STUDENTS TOWARDS ACADEMIC EDUCATION

by N. V. SCARFE

Dean of Education, University of Manitoba



There are many who say that there is an increasing tendency among young folk at high school and university to look down on or sneer at those who like academic learning, who enjoy the arts, or who find satisfaction in scholarly hobbies such as astronomy or ornithology. Even those who are good at academic subjects seem to be afraid to shine too evidently for fear of being thought a "brain" or a "highbrow" or an eccentric.

There is also, according to some, an increasing tendency to favour the "couldn't care less" attitude, and the "how can I get by with a minimum?" outlook. It is much smarter to know

about sports, about movies, about night clubs, about smoking or drinking or about dating.

There are reports that scholastic effort is openly ridiculed, and that serious application of the mind to a subject for its own sake is regarded as the attribute of a sneak and a social traitor.

To test the validity of such sentiments, the first stages of an experimental investigation have been recently attempted in Winnipeg. There seemed two possible avenues of approach; canvassing the opinions of teachers and parents and subtle inquiry of the students themselves. In the latter situation it did not seem that direct and blunt inquiry would achieve reliable results. Therefore, two different but roundabout methods were tried. One presented the students with a set of imaginary situations or conversations involving arguments for and against scholarly attitudes to school and university work. They were then asked to express in various ways, their sympathies with one or other point of view.

The second roundabout method of enquiry was to list about 50 good and bad attributes which might characterize a boy or girl in high school. The students were then asked to think of a colleague whom they specially liked or admired and to check those attributes which the admired one possessed. Following this, students were asked to do the same for a colleague whom they particularly disliked. Thus the enquiry attempted to get at the personal disposition of the student through his opinions of others. His own attitude was never directly questioned.

This interim report will discuss some of the results of the enquiry among teachers first. Over 100 senior high school teachers from the city of Winnipeg were asked to complete the following questionnaire:—

1. To what extent have the high school pupils with whom you have come into contact in recent years had a markedly anti-scholastic attitude?

Most _____ Some _____ Very few _____

2. Do you think that the adoption of this anti-scholastic attitude is due to:

- (a) The student's lack of intelligence
- (b) The influence of the general culture pattern of our society
- (c) The lack of good home influences
- (d) The Student's companions
- (e) The lack of a real devotion to pursuits of the mind among teachers
- (f) Our over-emphasis on passing exams rather than on interest in subjects.
- (g) Other reasons (specify)

Very largely	To some extent	Hardly at all

3. Do you think the anti-scholastic attitude is on the increase? _____

4. If yes—what reasons would you give to explain the increase? _____

5. If no—what is helping to counteract the tendency? _____

6. Please add any comment you think would be helpful to Counselling officers in gaining an accurate idea of

- (a) the extent of the anti-scholastic attitude
- (b) the causes of the anti-scholastic attitude
- and (c) most important—how to counteract it.

There are many criticisms to be levelled at this test, but since it was a pilot survey, it will serve to help the formulation of a better test later. Some of the tentative results of the pilot survey will, however, be discussed.

Over 60% of the teachers said that they knew "some" students with a markedly anti-scholastic attitude. On the other hand, 36% claimed that there were "very few" or no such cases in their schools. Certainly very few claimed that "most" students had such an attitude. About 55% thought that the anti-scholastic attitude was on the increase, whereas 45% held a more optimistic view. It is, of course, possible that these opinions represent the dispositions of the teachers rather than reflect the true situation among the pupils. Certainly those who thought that there was a considerable amount of anti-scholasticism in school also thought that the tendency was on the increase, whereas those who thought there was little or no opposition to academic prowess felt that the tendency was decreasing.

Very few thought that anti-scholarly attitudes had anything to do with the students' intelligence level, nor did they think that the teachers or the examination system were responsible. Naturally they would not blame teachers. There was some suggestion that the lack of good home influences and the students' companions had a partial influence. Most teachers, however, attributed the anti-scholastic attitude to the influence of the general culture pattern of our society of which, of course, they are a part.

Any tendency to minimize the value of academic distinction and intellectual capacity thus seems to stem from the very grass roots of our social order. It seems ingrained unconsciously in our way of life from a very early age. The very customs, traditions and mores with which we grow up condition us almost imperceptibly to accept such an attitude. At any rate, that would be the conclusion of the majority of teachers if their replies have been interpreted right.

In expanding this view, the teachers have explained that they mean that our society is excessively materialistic. Financial and economic success are the major aims of society, and unethical methods of achieving success are tacitly tolerated or even covertly approved. Certainly high financial rewards do not go to the academically distinguished, but to the unscrupulous, powerful, overconfident, practical men of the world. Emphasis is on doing, rather than on thinking.

Materialism thus results in lowered standards of values and in an overemphasis on sports and social activities as in ancient Rome, and a depreciation of individual excellence. Popularity is reckoned more desirable than scholarship; confidence more important than competence.

There is one other aspect of present-day society which the teachers did not stress at all, but which in the view of some observers is very significant. That is the general atmosphere of mistrust and fear that is sometimes unconsciously prevalent in society.

Apart from the overall indictment of the general cultural pattern of society teachers also mentioned two other important causes within the school itself. The first is the fact that a far higher percentage of young people are now continuing their studies beyond the age of 15 than ever before. This means that many with low ability are attempting courses unsuited to their interests or capacities. There is insufficient differentiation of high school offerings. Failure in the academic field naturally tends to set up anti-scholastic attitudes, particularly among those whose physical strength allows them to dominate or ridicule their more richly endowed colleagues. This condition is aggravated by the second characteristic of the schools which teachers stigmatise as a major cause of anti-scholasticism. That is the tendency towards heterogeneous grouping of students in school, regardless of ability, interests or background.

There is one other aspect of school which teachers as a whole do not agree is significant in promoting an attitude inimical to academic prowess, but needs mentioning here. That is the over-emphasis on examinations. This is closely related to the mistrusting attitude mentioned earlier and will be discussed in some detail later.

Those teachers who say that anti-scholasticism is on the decrease feel that the tightening up of our economic order and the increasing severity of competition in the workaday world is tending to put greater emphasis on a university education as the necessary preliminary to success. This means that more young people show a determination to master the necessary academic essentials for admission to the university and for the achievement of a degree. This, however, does not mean that there is any love of learning or sympathy with academic education for its own sake. A university degree is often simply a hurdle to be overcome on the way to financial affluence and security. The economic rather than

the spiritual motive is still uppermost. The joy of achievement, the satisfaction of an enriching experience, the desire for culture, an absorbing interest in things intellectual, an appreciation of the beautiful, and an insatiable curiosity are what we think of when we think of a scholar. They are the desirable outcomes of a fine education. They are not what our society or even our best students necessarily seek.

The fact that a person is studious, industrious and determined does not necessarily prove that he really admires learning or scholarship. The end that he has in mind may be entirely mercenary. On the other hand, it is unlikely that a person has much respect for scholarship if he is unprepared to work hard and persistently. Both ends and means must be right before a person may be adjudged scholarly.

It must, however, be remembered that no-one is likely to love learning for its own sake who does not find it satisfactorily interesting and attractive. We can make children work hard at school, but that does not mean that they like what the school offers. We can hold before their eyes the carrot of examination success and a higher financial and social status in the world, and we may find that they will devote great energy to school work and achieve high marks, but they do not necessarily become educated, nor do they wish to have anything to do with intellectual pursuits once the examination is over. In fact, it can be proved that cramming for the examination and all other bad teaching methods can induce a hatred for all things academic, and develop unethical attitudes to life—even though parchments are obtained.

School must first and foremost cause children to be interested in and like scholarly pursuits by the methods employed in school. Interest and curiosity, unhurried contemplation and objective thinking are the essence of scholarship. Anything which does not promote those attitudes in school by so much causes the development of the opposite attitude of anti-intellectualism.

In this connection, it should be noted that not one teacher blames the anti-scholastic attitude on the influence of progressive education. There is no progressive education in the high schools. Instead there is the traditionally dull textbook grind that kills enquiry, enterprise and enthusiasm and shifts the emphasis of education from the study of a subject for its own sake to the passing of a highly unreal and factual memory test called an examination.

The teachers were generally at a loss to suggest remedies to counteract the anti-scholastic attitude, for they were baffled with the problem of how to change the very core of our social order. They feel that it would need a major political upheaval and a new religious revival to cause newspapers to reduce the space given to sport and advertisements, to ban low-brow comics, to cause people to ostracise commercialised sport, to cause radio stations to broadcast nothing but high quality programs, to cause business firms to reduce their profits by producing goods of first-class quality at lower price, to stop all "smart alec" practices in commerce, and all pressure groups and nepotism in politics.

The teachers naturally applied themselves to simpler palliatives, particularly those that could be applied in school. They did, however, cry out for greater cooperation from parents who, they felt, might exercise

stricter discipline in the home and give greater encouragement to intellectual pursuits among their offspring.

In school, by far the largest and most important suggestion made by teachers was the segregation of children on an intellectual basis into homogeneous groups. No suggestion of unfair discrimination of any kind was made. On the contrary, the suggestion was made in order to give a fairer deal to everybody. Segregation means suiting the offerings, the rate of progress and the methods of teaching to the needs, interests and capacities of all children. Only by grouping them into relatively homogeneous intellectual groups can this be achieved. This is particularly necessary in city schools where materialism is specially noticeable. In some rural schools children get almost individual attention, and therefore some of the finest type of segregated treatment can be given, provided that all children are not forced to take the same work at the same rate in the same way.

City teachers are particularly strong in their support of the homogeneous grouping. They feel, however, that parents of relatively dull children would need some education to accept the idea. Teachers, however, say that we pander too much to parents of average children and neglect the small but important minority who have brilliant children. Teachers say we worship mediocrity and equate it with democracy.

Another suggestion supported by many teachers is that scholastic achievement should be given more publicity and prominence. There should be more rewards for academic prowess, and more scholarships so that good students can spend vacations on intellectual pursuits rather than on some commercial drudgery to earn money. Unfortunately such temporary menial tasks are often paid out of all proportion to their worth, simply because they are drudgery. Nevertheless, such rewards put false values on life so far as intellectual pursuits are concerned.

Teachers feel that parents could help to reduce the excessive demands which modern social life makes both on parents and children. The pace and variety of community existence tends to set up tensions and neuroses which are inimical to quiet study. They also put unnecessary temptations and distractions in the way of students. Without strong parental control and sympathetic encouragement many students very easily succumb to the tawdry blandishments of modern life. Children nowadays need the security and strength of a high quality home more than ever before.

Finally, there were some teachers who advocated that schools and teachers should be freer to choose the curricula, methods of teaching, and punishments best suited to their situation. They felt that teachers were too often restricted in their operations by rigidly prescribed texts and curricula, and by a massive array of regulations and checks. They felt that happy contented and adventurous teachers resulted in similar attitudes in children and that freedom was the essential basis of it all. This is very closely connected with the aforementioned problem of mutual mistrust in society and with the oppressive examination system. This will now be discussed in greater detail.

It is the writer's belief that the whole system and structure of Canadian Education is partly to blame for the anti-scholastic attitudes of our

time. It is, of course, true that the system is partly the outcome of our social order, which in turn is a reflection of the ethical and moral standards we adopt. I have in another place expounded my thesis on these ethical issues and have castigated severely all attempts to bring the idea of the labour-saving device into the intellectual and moral sphere. I have opposed violently the excessive socialisation of society, with its emphasis on conformity and equalitarianism at the expense of individual excellence. I have also expressed my serious concern over the attempts to apply the methods and attitudes of the business world to education.

I propose to pursue the same line of argument about our Education system, the history of which has been characterised by an increasingly efficient and rigid centralised control over a persistently ineffective school education. Schools seem to be over administered, but children are under taught. As the power of administrators has become greater, so the quality of education has become proportionately less. Progressively, Departments of Education have removed more and more responsibility and self-determination from teachers, and so the teachers have become progressively more and more slave-minded, or apathetic.

The number of regulations has increased; the curricula have become more minutely described and prescribed; the textbooks have increasingly attempted to replace the teacher. Inspectors have multiplied and have been given more duties and increased powers. Departmental examinations, which are avowedly set to test the teacher as much as the class, increase in number annually. Clearly classroom teachers are not trusted. They are treated as inefficient scoundrels. They are paid as if they were incompetent. They are hedged in, controlled and doubted. Even if there are still fairly wide limits within which teachers may experiment, the will to do so is soon damped by the general attitude which treats them as suspected and inferior employees not as valuable partners in a great ideal.

Teachers are judged on their ability to keep strictly to a prescribed curriculum and on examination results. Many, therefore, adopt subterfuges or uneducational methods of cramming. They are not judged in these examinations on their skill in making children more enthusiastic or curious, in developing fine characters or cultured outlooks, in encouraging wise action or moral behaviour. The children do not have to exhibit enlightened understanding of a subject or evidence of wide diversified reading in it. They must know only the facts and ideas of the text and the course, whether or not they understand them.

Not only do poor types of examinations corrupt and stultify the teachers, but they encourage an entirely unethical and anti-scholastic attitude towards learning among children. The work becomes an attempt to pass, by outwitting the examiners and by cramming likely questions. The achievement sought is not a love of a subject for its own sake, but a passing mark on a few arbitrarily chosen aspects of a subject culled from a textbook.

The idea that both teachers and taught will be lazy or indolent unless constantly confronted with an examination is utterly fallacious. If we think people are like that then we condemn them ahead of time as being untrustworthy and unethical. Honest disinterested enquiry would then be a thing of the past, and it would be true that antischolastic attitudes are with us to stay.

This is not a plea to abolish examinations but it is a plea to reduce the factual types to a minimum so that they act solely as periodical measuring rods applied no more than three times in a school career or twice in a university career. I would be happy, too, to let a student choose whether or not he would sit an external examination. If he needs a credential indicating the standard reached then let him by all means secure it by examination. But examinations must not be used as a club to threaten malingering or other students. They must not be a substitute for real scholarship or learning. They must not be the goal of learning or replace philosophical understanding of the value, function or content of a subject.

A teacher will often wish to set a private test or examination to see how well his teaching is succeeding. The students may wish to know how well they are doing, but there does not have to be the ridiculous spectacle of a factual examination ridden school system where every year the whole year is entirely overshadowed with threats of examinations. There are plenty of schools where as much as three months of the year are taken up with reviewing for, sitting for, and being castigated for examinations. Is it possible to wonder that children develop unethical protective devices, and grow to hate school subjects? Examinations which test comprehension, insight, wisdom and attitudes are a different matter, but even they can be overdone.

I can see no hope of reducing the incidence of anti-scholasticism in schools until three things happen: (1) Teachers must be freed from all unnecessary restrictions imposed on their activities by Departments of Education and School Boards. They must be loaded with freedom, responsibility and respect so that they develop independence, initiative, enterprise and enthusiasm. (2) External examinations must be reduced in total number but differentiated to suit different needs and programs (3) Homogeneous grouping of children according to intellectual ability must be universal.

It will be obvious that I am not advocating an impossibility for this is just what happens in many parts of Europe and it is interesting to note that Canadian teachers claim that immigrants from Europe rarely exhibit anti-scholasticism.

It should be interesting now to turn to the ideas that high school students express of themselves to see whether teachers' and adults' judgments are supported. It has already been shown that teachers do not share the same grave anxiety about anti-scholasticism as do university professors.

The comments that follow are the results of a pilot survey* in one school only, where a random sample of Grade XI boys and girls were asked to select from a list of statements those which seemed to characterise the fellow student whom they liked least. Subsequently, another and different list of fifty statements was provided and the same students were then asked to choose those which seemed to characterise the fellow student whom they liked best.

*Worked out by Dr. J. Katz and Dr. G. S. Maccia

The following statements were chosen by 60% of the students as characteristic of the fellow pupil whom they "liked least".

- "Would rather be a sport than a 'brain'"
- "Can't wait until school is over so he can meet his friends"
- "Does not talk about working hard at his studies"
- "Thinks going to a dance better than doing homework"
- "Would rather play ball with his friends than study"
- "Thinks that unless a subject helps you in getting a job it has no value"
- "Prefers to spend money on clothes rather than on books"
- "Thinks that unless the study is practical it is no use"
- "Gets by with the least amount of work"

No more than 10% said that the following statements characterised their "least liked" fellows:

- "Thinks that the majority of school time should be spent in serious study"
- "Does more than he has to in school"
- "Thinks that studying a subject in order to learn it is good"
- "Gets fun from book learning"
- "Thinks that it doesn't pay to know more than a little about any one subject"

It will be clear then that a vast majority of these children do not like the anti-scholarly pupil. A small fraction only seem to like students with such an outlook. There seems little difference between boys and girls or between clever or dull pupils. Boys dislike shirkers, while girls seem to hate particularly those of their fellows who prefer clothes or dancing to work. Dull children are particularly antagonistic to those who prefer sport to work, while clever children dislike those who are boastful.

Before commenting on these results, it would be well to analyse the second half of this enquiry which concerned the characteristics of those fellows whom they liked most.

Over two thirds said that the following were the chief characteristics of their "most liked" colleagues:—

- "Will try to answer in class whenever possible"
- "Approves of book learning"
- "Does not avoid studying school subjects"
- "Thinks that to do better than you have to at studies is wise"
- "Thinks that it is not nonsense to enjoy studying"
- "Wants to be in the top quarter of the class"
- "Will try to do more than is asked for"
- "Is not bored with school work"

Less than 6% of those answering claimed that their "most liked" colleague had the following characteristics:

- "Thinks belonging to clubs more important than studying"
- "Has no use for book learning"
- "Thinks that you should study as little as possible"
- "Does as little as he possibly can to pass"
- "Doesn't like people to know he ranks high in class"

Again, there is very little difference between boys and girls, except that boys like those who shine at Physical Education and extra-curricular activities more than do girls. Boys also seem somewhat more interested in the usefulness of a subject than girls. Girls are more concerned with friendliness and are less lazy than boys. There seems no difference between clever and dull children.

Both enquiries correlate very highly one with the other, and do not support outside opinion that there is a marked anti-scholastic attitude among Grade XI pupils, at any rate at one high school in Winnipeg.

Both teachers and pupils seem to agree that intelligence has very little to do with these attitudes; nor apparently has academic success very much bearing on the problem, at any rate at the Grade XI or university entrance level.

The problem now before us seems to be that of explaining the difference between the pro-scholastic attitude among high school students and the suspicion of anti-scholasticism that many adults have. It seems that teachers and adults generally may be under-estimating, mistrusting or misunderstanding adolescents.

In explanation it is important to emphasize that this second questionnaire represents the students' private confidential and individual written opinion. It is not a group or public expression of view. There is a great difference between the action and views of people in the mass or as expressed socially, and the private wishes and secret ideals of individuals. Society exercises a restrictive conformity on the overt behaviour and expressed views of individuals. Fear of ridicule and fear of being different are powerful elements in Canadian culture.

Furthermore, almost all society is influenced, managed, manipulated, or engineered by a relatively few dominating interests. The thesis of this article is that these interests are unconsciously and inevitably but never maliciously or deliberately anti-scholastic. The result is that the mass of society conforms to the influence or manipulation of a few. Teachers, in their turn, tend to reflect many of the unconscious ideas of society in their teaching and ways of dealing with children.

For instance almost all commercial advertising appeals to our baser wishes. Luxuries, labour-saving devices, methods of avoiding effort are constantly stressed. Diverting pleasures, comforting amusements, relaxing entertainment greet us at every turn. Because it is easier to make money by producing luxuries rather than necessities, so commercial interests tend to concentrate our attention on frivolous leisure pursuits.

Commercialised sports are another way of diverting serious attention from things of the mind. Despite the fact that very few ever actually participate in games, interest in them is maintained at fever pitch by press and radio. It is necessary to do this because gate money is the essential element in the commercial proposition.

Because commercial interests make big money out of mass stupidity and human frailties, so radio, movies, and press tend to overstress the frivolous and anti-scholastic not because they are opposed to scholarly pursuits, far from it, but because more money is made out of other types

of activity. Following their example, many people feign interest in sports and pastimes, and shun any suggestion that they are old-fashioned or erudite or high-brow.

There is a cult which many people in the mass support, but to which few individuals in their hearts adhere, which encourages blasé sophisticated attitudes to work. Teachers reflect the same thing when they assume that it is necessary to use slang sportsman's language instead of the good Queen's English in giving lessons. They reflect it when they unjustifiably assume that children naturally dislike to use their brains. They reflect it when they assume that only a jocular manner and slighting allusions to serious study will secure attention.

There is, in fact, a general unconscious social assumption that serious pursuit of knowledge for its own sake is, to use the slang term, "phoney". Children who show innocent enjoyment in intellectual achievement are somehow doubted, or suspected of unnatural behaviour or perversion.

From the mouths of the "babes and sucklings" in one high school, however, I have been able to show that our social assumptions are incorrect. Despite our materialistic commercial world, children are still made of good honest stuff. It is, to them, just as human and natural to be serious, intellectual, hardworking, scholarly, interested in learning, as to be exactly the opposite but they dare not admit it publicly. I think that children and adolescents are neglected. They need the adult support and example which comes from those with faith and trust in the innate goodness of most children, and from those who are brave enough to strive for a society which reveres fine behaviour and scholarly attitudes and which assumes that children like scholarship and can be proud to talk of it.

Very few individuals have a naturally unscholarly attitude. Many however, accept it because they believe they will be dubbed unique or odd if they profess otherwise in a world in which materialistic interests emphasize conformity to unscholarly ways for the sake of financial success.

Teachers are also prone to think that a child is unscholarly because he resists doing the work required. Quite often, however, the child is not anti-scholarly at all, but is simply bored by the way in which the teacher is operating. The child is expressing opposition to the teacher not to scholarship. Many a fine pupil is turned to apathy by bad teaching methods and badly trained teachers. I believe that one of the best ways of preventing anti-scholasticism in school is to raise the standards and quality of the training institutions.

University professors, school teachers, and the enlightened public may be right when they say that young people as a group seem to behave as if they were unsympathetic to learning. They may be right when they say that the publicly expressed sentiments of adolescents seem to confirm their fears. I believe, however, that in their heart these young people are longing for a stronger lead and a finer example from parents, teachers and society generally and would gladly adhere to this higher ideal of a less materialistic society. Suppose that we all trusted them more, examined them less, and gave them a better chance actively to pursue the exciting interesting new world of knowledge and literature for its own sake without restrictive conformity of texts and prescribed curricula.

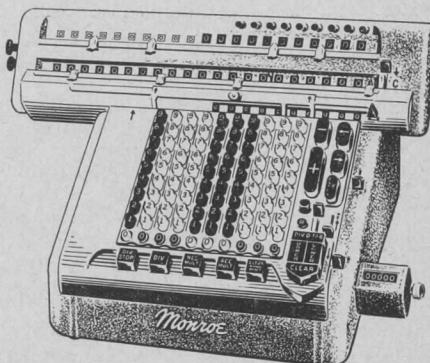
Democracy connotes freedom for adventurous exploration of the treasures of human wisdom, and the discipline of rigorous thinking about our wonderful world. Materialistic pleasures are temporary and unsatisfying. The greatest and most lasting joys are those of the mind and the spirit. Children are still innocent enough to know that, even though society does all too quickly corrupt them and delude them with false commercial values. We need to reinstate our faith in high quality culture—and children will automatically imitate that faith.

Monro Matic

STATISTICAL MODEL.
CAA-10-3-S.
Fully Automatic

Special, exclusive features,
to meet requirements of
statistical and scientific
calculations.

Free trial demonstration
on request.



We feature the full line of MONROE Adding, Calculating and
Bookkeeping Machines

A. LLOYD CLARK & COMPANY, LIMITED

220 Bannatyne Ave.

Winnipeg

Exclusive distributors of MONROE equipment for Manitoba, Saskatchewan,
and Northwestern Ontario

EVALUATING CRITICISMS OF EDUCATION

by JOSEPH KATZ

Professor of Education, University of Manitoba



Education has become game for all and sundry to shoot at. An open season has been declared on all things and people in any way concerned with education. Not a day goes by but some criticism is levelled at either the product of the school, or at a person concerned therewith. One hears from time to time that teachers can't teach, students can't study, trustees can't trust, and administrators can't administer. In fact, judging from some criticisms education is chaos and in dire need of immediate overhaul. Sometimes the note is muted, and grudging credit given to one phase of the educational system. And, at other times, one can even hear a faint word of praise. There is an occasional suggestion that the perfections of the good old days may be matched—and at times surpassed—by those of the new days!

That criticism is prevalent is self-evident. That criticism can be good, is also self-evident, particularly in a democracy where education is held to be the right of all. However, the fact that criticism is prevalent does not necessarily mean that it is always good, nor is good criticism always practical. Criticism, because of the very nature of our society, is bound to be a part of everything we do. It has a very special role to play in any undertaking, but, whenever done, ought to be evaluated in terms of its intrinsic structure.

Criticism is a part of the educational system itself, and is valuable in serving education. There is no gainsaying the fact that criticism serves to guide what is being done, and whether or not this service is good depends upon the value of the criticism and on the way in which those affected by criticism apply it.

Criticism usually grows out of concern for a particular object, in this instance some phase of education. It is usually an evaluation of whether or not this phase of education is serving the purpose for which it was designed. One individual may conceive the purpose to be quite different from that which another considers it to be, but essentially each has the right to evaluate what is being done. The manufacturer of ice cream may see his product in one way, but the consumer may criticize his product by not buying the product, without saying anything about it. The manufacturer on the other hand would rather have the dissatisfied customer suggest how to improve the product than simply to stop buying without saying anything. What manufacturers usually do is to sample public opinion and modify the product accordingly. This practice may not be quite so easy to carry out in the field of education, but it does mean that we ought to consider criticism in the light of the standards implied by this criticism, and learn to evaluate criticism on its own terms. Criticism is fine; that goes without saying. How well criticism can be of use is another matter and one which it is the purpose of this article to weigh.

If criticism is an evaluation of what education is doing, then we ought to consider that some forms of criticism are better than others. In all forms of criticism there will be a standard of some sort which is used, and it is with finding this standard that we are at the moment concerned. The standards which people apply to any one social institution will of necessity differ by virtue of the different experiences which they have had. That some of these standards are more in keeping with the public good of all and with the best aims and purposes of the institution than others is also, at times, evident. What we must discover is the background and aims of any particular criticism. Is it criticism which is made in good faith? Or is it criticism which is made with a view to shaping the institution in the light of standards which would ultimately bring about a one-sided or biased approach to the whole problem? These are questions which are pertinent to any given body of criticism. Even more important however is the fact that a systematic set of questions applied to any particular criticism will usually identify the nature of the criticism and the purpose which lies behind it. If criticism are to be accepted as a part of the educative process and are to be considered valuable, it is necessary that these criticism be evaluated and the good screened from the bad.

Any critic of education must justify what he has to say. This justification must take the form of revealing the standards which he applies and the philosophy which he has about education as a whole. Not only this, but he must be prepared to identify all of the implications and inferences which may be drawn from his exposition. The manner in which it is given, the assumptions which are made, the very words he uses, these are all pertinent to the criticism which he has undertaken to give. If the person concerned is going to take the position that there is something which ought to be corrected then there needs must be an examination of all the factors which go to place this criticism in its proper perspective.

In evaluating any criticism it is necessary to consider the personal factors involved. What position does the critic hold? What authority has he for speaking as he does? What has been the nature of his professional experience? Has he had any untoward experiences in education which may be conducive to bias? What is his purpose in undertaking a criticism of education? What is the design of his criticism? Is he using methods which are consistent with his experience and understanding? Is there anything in his experience which justifies his or her position? These questions and many more like them, are the kind of questions which we have to ask about any person who undertakes to criticize the educative process. Given that a person's wealth of experience justifies a critical attitude it may well be that the educative process could pay strict attention to what is said, and undertake to examine the ways and means by which the suggestions for improvement could be implemented. If experience, however, is otherwise, then it may be necessary to sift the arguments more carefully.

Another aspect of criticisms of education has to do with what the person is criticizing. A critic of education may be concerned with any one of a number of things. He or she may criticize the product, the curriculum, the teacher, the administrator, the aims, the philosophy, or any one of a number of things. However, a close examination of a number of criticisms of education reveals the fact that usually a few things only are criticized

without considering their relevance to other aspects of education. To single out one part of the educative process without giving attention to its relation to the whole is to look at the trees without considering the forest. There will more often be bias in this kind of singular approach than when the critic considers carefully the way in which many aspects are interrelated and interdependent. What the person has to say about education derives its value from the comprehensive approach to the problem of education, not from any isolated consideration of one item only. A person who gives evidence in his criticism of having weighed in the balance all relevant factors will be more likely to have arrived at a fair and sensible evaluation than one who has not done so. Of course if a person has deliberately selected one aspect only of an educational system for criticism, then we must ask whether or not he has also provided evidence of having considered this single aspect in relation to the whole.

It is well, too, to consider when a criticism comes to the front for attention. The particular situation obtaining in a given instance is sometimes a clue to the reason why the criticism comes when it does. If, for example, there are quite a number of criticisms of education made at a time when the schools are confronted by large financial problems, then this very fact may account for the sudden interest in education. Or, the criticism may arise as the result of some political campaign, in which instance the political factors may be the basic reason for the attention given to education. Then again, criticism may arise when the educational system itself is so concerned with the minutiae of education that an observer is perfectly justified in drawing attention to the larger questions which confront education. The particular time at which a criticism of the educative process is made public ought to be examined in relation to the criticism itself in order to discover whether or not this particular time has any bearing upon the situation.

One of the most important points in evaluating a particular criticism is to consider where a criticism is given. If the criticism is given from the pulpit, then it may well be that there is a religious reason for this criticism. If the radio is selected as a medium the question might very well be asked, is there some special reason why the radio was selected as the medium for communication and not some other medium? Usually the press is a popular channel in which case it has to be weighed either as editorial or as news. In either instance the validity of the criticism must be considered. Where a criticism is given depends, too, upon the nature of the audience present and the kind of response engendered by the criticism held before them. Criticism made of education in the sanctuary of a private conversation may later become formal or informal public evaluations, whereas they may have been arguments only, not considered criticisms. In all instances of criticism of education, whether in book or pamphlet, pulpit or press, radio or television, it is important to consider the place where the criticism is given.

By far the most important question to ask of any criticism of education is, why has this criticism been given? The criticism may have come about as a result of a truly professional interest in the educative process, or from a sincere attempt to modify present practice in the light of a firmly held belief concerning the ends of education. On the other hand a criticism of education may emerge as the result of a sectional social interest, an

economic bias, a religious view-point, or for the purpose of gaining political advantage. Where the person concerned is not especially trained in any branch of the educational field, but is concerned with it solely as a social institution, then this might or might not be a good criticism. If a person is greatly concerned about the increased expenditures for education and calls much good education frills, then caution has to be exercised as to the validity of the person's claims. A criticism of education may arise as a result of a person's belief that the church has the prior right to education and, without saying this in so many words, lead one to believe that the present errors in the educative process could very well be taken care of by placing all education within the fold of the religious community. Somewhat the same kind of examination of criticism has to be made when a person from a private school begins to level attention at public schools. In many instances the person's real beliefs or basic assumptions will not show unless one scrutinizes the materials present in the criticism with a view to discovering the particular bias present.

Any one criticism of education is only as valuable as it is reasonable and impartial in its approach to the whole problem of education and as it is constructive in its evaluation. No human institution can go far without constant and constructive criticism. Criticism directed to the growth of the institution is a necessary part of its life. This is especially true in the case of education. It is even more true when education in a democracy is conceived to be everybody's business.

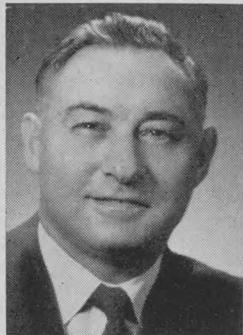
Although there may be those whose training, education, and experience have fitted them through specialization to deal with the problems of education, nevertheless everyone has the right to consider to what extent the schools are achieving the essential aim set for them by democracy. It is however incumbent upon those who would set themselves up as critics of education to recognize that in undertaking criticism there is a responsibility to society and to education. This responsibility means that the critic ought to base all statements upon facts or logically developed arguments which take account of the facts. In coming to any generalization about practices or theories in education, the critic has to be able to provide evidence which is demonstrably true and complete, and is not the result of bias, or of unwarranted opinion, or of erroneous thinking.

When the person making a criticism wears the mantle of authority conferred by university degrees or position, then that person's responsibility is even greater. There is implied that this person is apprised of the ethics of truth, and is sufficiently well-trained to recognize that what he or she says is responsible. If criticism is to be of value in guiding the educative process for which all may be held responsible, then it must be recognized that the critic is himself subject to the same kind of evaluation which he seeks to impose upon others. Only if the critic of education can first pass the test of his own material being evaluated is his criticism worthwhile.

REVIEW OF FOUR SELECTED TERM PAPERS

by H. L. STEIN

Professor of Educational Psychology, University of Manitoba



Reviewed in this article are four outstanding term papers submitted by graduate students during the past year. In each case, the subject of study is original, the data derived are objective, and the method of study approaches the scientific. Space does not permit the presentation of the term papers in full, but in each case, the format, writing style, and detail as to footnoting and bibliography are of a particularly high order.

1. CROFTS, IRENE

A study of the problems of delinquent girls as compared with those of a group of matched controls. Course 724 (Psychology of Adolescence) June, 1954.

In her introduction, Miss Crofts states clearly the importance of the problem. "It (Juvenile crime) is one of the most serious social diseases of our culture at the present time. The importance of the problem was clearly seen by the American Youth Commission which recognized that approximately three quarters of confirmed criminals begin their careers in youth or childhood . . . It is clear that the foundations for a life of crime are laid in youth. It is therefore a social responsibility to recognize the problem and to make a serious attempt to uncover the crucial factors in order that appropriate steps may be initiated to salvage the lives of young people who may or do clash with the law."

The purpose of this term paper, then, is to study the problems of a group of adolescent girls in a detention home and to compare their problems with those of a control group chosen from a suburban junior and senior high school and matched as closely as possible for age, socio-economic status and intelligence.

The method of studying the problems of both the experimental and the control groups was to administer the Mooney Problem Check List, 1950 Revision, Junior High School form. The experimental group consisted of fifteen girls from an institution for delinquents. They ranged in age from 14 yrs. 5 months to 17 yrs. and 8 months and were in Grades VI to X. Of the 15, nine were over-age for grade. The I.Q.'s ranged from 63 to 121. The control group had an age range from 14 years 6 months to 18 years and 9 months and an intelligence range from I.Q. 85 to I.Q. 118. They were in Grades VI to XI and 11 were over-age for grade. The matching involved certain difficulties but the discrepancies in matching were not great.

The Mooney Problem Check List was administered according to the directions except that instead of answering the questions on page 5, the girls were asked to write (if they cared to) a statement about the problems

they had had in school before they were committed to the institution. In using the Problem Check List, anonymity was maintained.

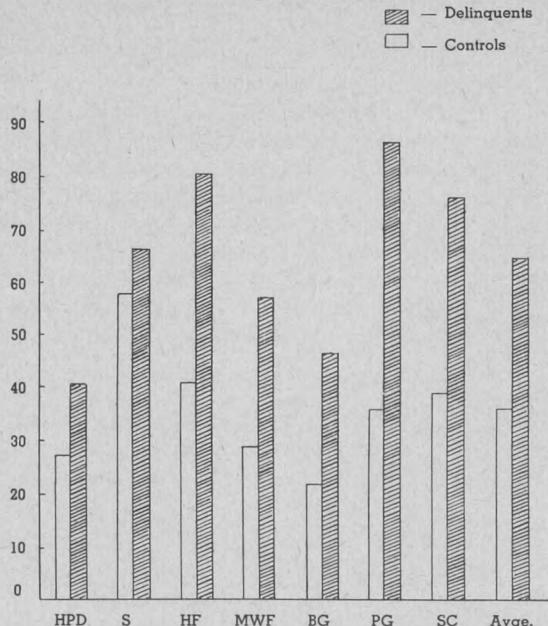


Fig. I. Comparison of the Number of Problems Checked by Delinquents and Controls

Obviously a study of this kind has many limitations. However, in spite of these, "there appear to be significant differences between delinquents and the controls, both in the number of problems checked and in the actual items checked. Even the statements of the delinquent girls are quite different from those made by the controls. The girls in the institution indicated almost twice as many problems as the controls. Figure I compares the number of problems checked by the delinquents and the controls in each of the seven problem areas and also compares the average number per area. In **Relation to People in General** the delinquents indicated almost two and a half times as many problems as the controls. The area which shows the least difference between the two groups is **School**. However, here the picture for the controls is probably not an average picture since such a large percentage of the controls were over-average for their grade.

The area of greatest concern to the delinquents is **Relation to People in General**, with **Home and Family** and **Self-Centred Concerns** not far behind in the number of problems checked. The area of greatest concern to the controls is **School**. The areas of least concern to the delinquents are **Health and Physical Development** and **Boy and Girl Relations**, while the areas of least concern to the controls are **Boy and Girl Relations**, **Health and Physical Development**, and **Money, Work, Future**.

A study of the median numbers of problems checked in each area shows similar results to the above, so that whether the median number or the total number of problems checked is considered the same results are

evident. It is not surprising then that the delinquents checked so many problems since they are "characterized by a stormy and stressful existence."

Miss Crofts made a careful analysis of the individual items checked in order to note which items might be significant in differentiating the two groups. In each area, the criterion for differentiation was arbitrarily set at 20% more for one group than the other. Space does not permit setting out all the findings but in each area it was possible to detect the kind of item which contributed mainly to the general findings expressed above.

In her concluding chapter, Miss Crofts points out that the fact that the delinquents checked so many more problems than the controls seems to support the evidence of other investigations of the importance of emotional factors—they have more worries and experience more "emotional discomfort" than the average adolescent. The difficulties indicated in **Relations to People in General and Self-Centred Concerns** emphasize the hostility and insecurity which characterize the delinquent. The large number of Home and Family problems checked agrees with other findings which stress the seeming inability of the home to provide normal opportunities for emotional development and satisfactions. In the area of particular interest in this study, the school adjustment, evidence points out the failure of the school to meet the needs of these adolescents.

2. JONES, AUDREY

A Comparison of Athletic and Non-Athletic High School Girls to Discover what Relationships exist between their Athletic Tendency and their Academic and Social Development. Course 202, June, 1953.

In introducing her study, Miss Jones says, "although the actual machinery of the scholastic program has undergone noticeable alterations, the main purpose of our educational resources as a whole continues to be the development of well-rounded personalities . . . One might well ask: Is Physical Education a desirable step toward our educational goal? Is there any connection between interest in athletics or tendency to be athletic and over-all personality? Does an individual's active participation in Physical Education have any relationship to academic and social development?

In this study an attempt is made to answer these questions by a comparative study of two groups of high school girls classified as athletic or non-athletic on the basis of participation in athletics and their natural disposition towards sport. They are compared first in certain athletic accomplishments in an effort to justify their placement in one of two groups, and then on the following characteristics, habits and attainments: Track and Field activities, Baseball and Volleyball activities, General Sports activities, Physical Characteristics, Scholastic Achievement, Record of Conduct, Home Background, Personal Habits, Religious affiliations, School Activities, and Recreational Interests. Each Group consisted of twenty-five girls matched for age and grade.

The findings of the study are presented in an elaborate series of tables which need not be reproduced here. In her concluding chapter Miss Jones makes the following significant statements, some of which have been paraphrased for brevity:

1. The results of the tests show that the girls have been satisfactorily classified as athletic and non-athletic. For example among other things eighty percent of the athletes were members of at least one team while seventy-five percent of the non-athletes were not affiliated with any team.

2. The academic average of the athletic girls exceeded significantly the academic average of the non-athletic girls.

3. Regularity and dependability of the two groups was indicated by a comparison of lates, absences, merits and demerits. In every grade the athletes had far better records than the non-athletes. The convincing margin held by the athletic group might be interpreted as a result of the greater interest in certain school activities, which gives them the incentive to attend school regularly in order to participate in these activities. This could quite possibly prove to be another incidental though valuable reason for having an active physical education program.

4. In comparing home background, athletes come from larger families in which fewer mothers are working. In spite of their heavy schedule of activities athletes still find time to work more out-of-school hours than do non-athletes.

5. Only three of the athletes smoke, while over half of the non-athletes smoke.

6. The athletes are far more active in church organizations than are the non-athletes.

7. The non-athletes attend twice as many movies as their athletic counterparts.

8. Both groups are about equal as regards boy friends.

9. Three times as many athletes as non-athletes have definite musical interests and activities outside of school. In the non-athletic group, seventeen girls had no outside interests whatsoever. Only one athlete had no outside interest.

As a result of this study it is not possible to say whether the participation in athletics produces a well rounded personality or whether a well rounded person participates actively in athletics. However, one of the aims of physical education is to form well rounded personalities. Therefore it is justifiable to assume that participation on physical education activities may have contributed to the demonstrated superiority of the athletic group by developing in them a more fully rounded personality than in the non-athletic group.

3. PERFECT, MARY

An Analytical Study of An Existing Scheme for Classifying Girls for Athletic Events. Course No. 205, Sept. 1954.

This study questions the use in the Winnipeg junior high schools of the existing (1953) classification scheme for the athletic handicapping of girls for track and field events. The categorization appears to be useful in producing manageable groups, but less successful in predicting abilities and outcomes, since it seems to produce no observable differences in athletic achievement.

Measurements of age, height, weight, sixty-yard dash, high jump, and ball throw for three hundred and fifty girls from two widely separated junior high schools were carefully taken and recorded by the writer of

this study. All possible combinations of pairs of the six factors measured for each individual were set up in scatter-diagrams to demonstrate correlation. The resulting relationships were expressed, by the use of the Pearson Product-Moment Formula, as coefficients of correlation between these measures. Finally, the relationships between the present classifications and each of the three track and field events were demonstrated and found.

The Results of the Correlations:

1. As might be expected, weight and height (.54) age and weight (.37), and age and height (.29) showed significant correlations.
2. Height and sixty-yard sprint (.11), age and sprint (.02), and weight and sprint (-.07) seem to indicate that height only may be slightly significant in predicting the ability of a girl to run to sixty-yard sprint.
3. Weight appears to be once more a slight disadvantage to achievement in high jumping (-.03), while age and high jump (.28) and height and high jump (.23) show-somewhat significant correlations.
4. Weight and ball-throw (.19), height and ball-throw (.18), and age and ball-throw (.17) are all close and slightly significant at low levels of confidence.
5. Of the correlations of each athletic event with the classification system, classification and ball-throw (.23) alone yields a significant result. It would seem that no relationship exists either between classification and high jump (.08) or classification and sprint (-.01). Combined according to the present formula, the factors of age, weight, and height may cancel one another out and produce a five-category classification system which is slightly useful only in the prediction of ball-throw results.
6. It seems possible to conclude that weight alone is of very little value in classifying for athletic competition and that height alone and age alone yield correlations of significances which are far from satisfactory. However, if the fact that the age range is small is taken into consideration, the correlation coefficients appear to become more significant.

Experimentation with various age-weight-height combinations to see if a more satisfactory method of classification than the present one could be found presents the possibility of being not only interesting, but of value to the field of Physical Education in Winnipeg.

4. TOEWS, JACOB

A Study of the Application of Certain Standard Measures to Indian Children. Course 202, May, 1954.

The purpose of this study is to apply certain standard measures to Indian children with a view to determining the adequacy of the instruments and the extent of the deviation of the test results from the norms. The tests used were the Wechsler Intelligence Scale for Children, the Iowa Silent Reading Test, New Edition, Elementary form, and the Dominion Arithmetic Test, Fundamental Operations, Grades IV—VIII.

It is recognized that these tests have been prepared against a background of culture which is highly complex and which takes certain experiences and a certain amount of general knowledge for granted. If these measures are then applied to members of a different culture, as is the case in hand, great care must be exercised in interpreting the results.

In this paper, Mr. Toews has given an excellent description of the nature of the Saulteaux (Ojibway) Indians, their personality, culture, habits mode of living and outlook on life. He has lived and worked with Indian children for a long time in the Berens River Area which lies on the north-east shore of Lake Winnipeg.

The tests were carefully administered and the results were methodically analysed. Questions of validity and reliability were carefully considered. The subtests of the WISC were examined for their appropriateness. The results are presented in a series of revealing tables, and each table is discussed in the light of the culture pattern under investigation.

The following statements are drawn from the summary of conclusions:

1. The Indian children tested rated, in the average, dull-normal on the Performance Scale of the WISC. The mean I.Q. was 83, 17 I.Q.pts. below the norm. The range of I.Q.s was from 58—108.

2. The mean I.Q. tended to rise with age and grade. That the children in the higher grades scored higher quotients points to the probability of the effect of learning upon the intelligence rating on the WISC.

3. Children known to have white blood showed superior intelligence over those of pure Indian blood.

4. Results in the Iowa Silent Reading Tests showed a difference of 1.5 Grades on the average between the grades of the children and the grade-equivalent of the test. There is a difference on the average of four years between their chronological age and the age-equivalent of the test.

5. On the Dominion Arithmetic Fundamentals Test the children met the requirements set by grade norms. Language and abstract reasoning was not a factor in this test.

6. The children proved to be willing and cooperative. Rapport was easily established and maintained.

7. In none of the tests did the element of time enter as an unduly penalizing factor.

8. The test can be regarded as adequate and suitable for testing Indian children. The test items were not too far removed from the children's experience. They proved to be interesting, thus easing the problem of motivation.

UNIVERSITY OF MANITOBA WORKSHOP ON HUMAN RELATIONS

"The School in the Social Order"

Faculty of Education Course 228

July 5 to August 13, 1954

by MARJORIE SHAW and MARGARET SPEERS

This is a report on a new venture at the University of Manitoba Summer School—a venture in analyzing causes of prejudice and seeking to moderate and finally eliminate these barriers to understanding and goodwill.

Many people are becoming aware of the work of the Canadian Council of Christians and Jews which was founded in 1947. It seeks to promote better understanding among the various racial, religious and cultural groups in Canada. It does not seek uniformity in religious beliefs but in its own words "unity without uniformity" or "unity in diversity," stressing the Brotherhood of Man on the religious basis of the Fatherhood of God.

To accomplish its aims the CCCJ uses many channels of communication including industrial, educational and community organizations, as well as the broad channels of press and radio. In connection with its educational program, the Council, in cooperation with the Faculty of Education of the University of Manitoba, arranged a Workshop in Human Relations which was held at the University of Manitoba in the summer of 1954. In making these arrangements, Rev. Richard D. Jones, Executive Director of the CCCJ, received the active assistance and encouragement of Dean Scarfe of the Faculty of Education. The enrollment in this course was limited to teachers or those closely connected with education. Two other workshops were held this past summer also—one at the Banff School of Fine Arts for undergraduates, and the other at the University of British Columbia for a mixed group. This is a report on the workshop held at the University of Manitoba.

The circular advertising the course stated: "Persons of various social, economic, racial, religious and nationality backgrounds settle in Canadian communities. Living side by side they can learn healthy democratic ways of working together while maintaining their distinctive and valuable cultural and religious differences.

"Schools bring together in frequent and close contact children from families and social groups whose customs and ways of living vary widely. To make sure that what children learn in these institutions fits them for sound citizenship in our culturally diverse society, presents a great opportunity to everyone whose job it is to work with children."

Thus, those who spent six weeks together at this workshop in close association with each other, learned at first hand how groups, or individuals, can be assisted to work for good human relations.

Such good relations are what the Canadian Council of Christians and Jews and any good Faculty of Education aims to achieve. By stressing the central point of the Christian and Jewish faiths—the Fatherhood of God—the Council then seeks to teach its members, comprising many colors,

nationalities and creeds, to live together as brothers. It believes that group tensions, whatever their cause, be it racial, economic, religious or social, can be reduced by a knowledge of their crippling effects on the individual and society, and a realization that there are great underlying similarities in the basic values of all groups.

The various speakers who addressed the workshop tried to show ways in which this lessening of tension could be worked out and what the teacher's role in this work could be.

The workshop was very fortunate in having as its coordinator and director, Dr. Denis McGenty, Sociologist and Professor of Education, Program Director, Chicago office, National Conference of Christians and Jews. In addition there were outstanding and well informed consultants and visiting speakers: Alice V. Myers, Program Director, Chicago area; Grace Dolmage, Faculty of Education, University of Manitoba; Donald Graham, Director of Education, Forest Hill Village, Toronto; Vern Trott, Liaison Officer with the Guidance Clinic, Forest Hill Village; Dr. J. E. M. Young, Professor of Education, Brandon College; Father Bernard Mailhiot, Psychology Department, University of Montreal; Judge W. J. Lindal, Court of Queen's Bench, Winnipeg; Rabbi Arthur Chiel, Rosh Pina Synagogue, Winnipeg; A. S. R. Tweedie, Director, Department of University Extension and Adult Education, University of Manitoba; J. H. Lagasse, Regional Liaison Officer, Canadian Citizenship Branch of the Department of Citizenship and Immigration; Kenneth Priestley, Professor of Education, Dean of Liberal Arts, University of Hong Kong; Charles Hendry, Director, School of Social Work, University of Toronto.

On Monday, July 5, 25 teachers, 9 men and 16 women, from different parts of Manitoba assembled to take this course. They were instructors from the elementary and high school levels along with several principals. They represented the following ethnic backgrounds: Icelandic, Ukrainian, French-Canadian, Welsh, Roumanian and Austrian. The religious affiliations were also varied: Baptist, United Church, Greek Orthodox, Roman Catholic, Mennonite, Anglican, First Presbyterian, Greek Catholic, Unitarian and Jewish.

With such a heterogeneous company, it was not difficult for Dr. McGenty to show how people have built up prejudices about other races, religions, economic groups, and so forth. By the expedient of having members of the class list qualities often attributed by the general public to the French, the Irish, the English, and German peoples by way of example, Dr. McGenty was able to demonstrate the prevalence of stereotype thinking and its unreliability. Such pictures of certain ethnic groups Dr. McGenty called "frozen images", "pictures in the mind," and "tabloid thinking". To produce better human relations people must be seen and understood as individuals. Generalizations on the basis of racial, religious, ethnic, and class grouping are quite untrue.

To build citizens free from prejudice the home should provide an atmosphere in which basic needs for security, response, recognition, and new experience, will be met. The school builds upon this foundation, in an endeavor to produce "world citizens" who do not need to discriminate against groups or individuals in order to feel secure themselves. The workshop alerted its members to their job in helping to bring this about.

In addition to the topics presented by special visitors and by the regular workshop sessions under the leadership of Dr. McGenty, the following films were shown: Who Will Teach Your Child; High Wall; Neighbors, Feelings of Hostility; One God, the Way We Worship Him; Chuck Hansen, One Guy; Citizen Varek; the Newcomers.

As the course evolved, the members of the Workshop became more at home with each other and came to discuss quite freely the subject of group relations. A note of emphasis was laid on the fact that all are children of one God, hence brothers. This essential brotherhood of man was highlighted by means of various techniques. These included lectures, films, and the so called workshop practices of role-playing, character identification, and small discussion groups. Also one memorable day was spent on a tour of five city churches and synagogues by bus. The tour began with a visit to Rosh Pinna Synagogue and went on to see St. John's Anglican Cathedral, First Mennonite Church, St. Boniface Basilica, St. Mary's Orthodox Cathedral, and Westminster Church. Clergymen conducted the group through the churches and explained some of the religious practices and doctrines held by their own denomination. This shared experience served to promote an increased understanding and respect for one another's religious beliefs, and a realization that the religious beliefs we hold in common are more vital than the differences.

Through all these various activities, the members were made aware of the principle of brotherhood at work in Industry, Community, School and Church.

By living together (this must include play as well as work and discussion) members of the workshop were able to get to know each other as individuals. So the group ate lunch each day together. Although this session often became a continuation of the discussion topic which had stirred considerable interest during the morning (and so it was intended), there were times too when the lunch hour became just an easy relaxed, friendly time. One lunch hour was spent on the banks of the Red River rather than indoors, thus carrying out the general theme of variety of experience.

A social occasion which gave enjoyment plus further information about the ways of various ethnic groups was a Progressive Dinner. In the course of the evening three homes were visited. Such foods as Jewish Ritual wine, French-Canadian pea soup, holubci, matzos, komish broit, bagelech, vinaterta, ponnukokkir, and coffee in the Icelandic style were served.

Afternoon tea at the home of one of the workshop members provided yet another period of relaxation and fun.

A trip to Victoria Beach was another highlight of the social experiences of the group. Here in another type of situation the group learned that good human relations must first begin within the group itself by the individual contacts of personalities and from there spread out to others. A parallel can easily be drawn between this situation and the classroom and community.

The final concensus of opinion by all concerned was that this workshop was most successful and most profitable.

SCIENCE INTEREST AMONGST JUNIOR AND SENIOR HIGH SCHOOL STUDENTS

by N. W. WILDE
M.Ed. Thesis Abstract

The purpose of this paper was to investigate pupils' interest in science in some Junior and Senior High Schools in Winnipeg. This investigation included six different enquiries which, with their corresponding findings, are briefly summarized below.

Enquiry One

A study to determine the percentage of pupils in a Winnipeg Junior High School who are sufficiently interested in science to undertake voluntary construction-type projects related to their curriculum.

A pupil who undertakes a science project in his own free time may be considered to be interested in science. If the number of pupils so doing is compared to the number of pupils in the student body, we have a definite index—the percentage of pupils interested in science. This method of estimating pupils' science interest has one important advantage over the questionnaire type of investigation—it will not depend on the individuals opinion of his science interest, or what he thinks his opinion should be. This enquiry involved some 542 pupils during the years 1945 to 1950. A total of 109 different pupils completed 22 science projects during this time. These science projects included such activities as a classroom zoo, a large star chart, a reflector telescope, a preserved bat, and many others. It is the opinion of the writer that the percentage of pupils in a Junior High School that will respond to this type of activity over a period of years has not been previously determined.

Enquiry Two

A study using an original questionnaire (Science Interest Scale, Form A Revised) of the Thurstone-Chave-Likert type to measure interest in science of Junior and Senior High School students and to note variations of science interest through the grades.

For the purpose of this thesis, an original test or scale was developed to measure interest in science. This was constructed by selecting a number of statements that the writer hoped might reflect the opinions of the pupils involved. These statements were of five types as follows:

- A) Strong liking for science,
- B) Moderate liking for science,
- C) Neither like nor dislike for science,
- D) Moderate dislike for science,
- E) Strong dislike for science.

This collection of statements is similar to the Thurstone and Chave¹ technique of scale development but different in that it employs a five point system as used by Likert². It is also similar to the technique used by

1. Thurstone, L. L. and Chave, E. J., *The Measurement of Attitudes*, Chicago; University of Chicago Press, 1929.

2. Likert, R. A. "A Technique for the Measurement of Attitudes." *Archives of Psychology*, XXII (1932), 1—55.

Silance³ in that it used statements corresponding to, "I hate this subject.", "I haven't any definite like or dislike for this subject.", and "I like to study this subject."

Unlike the scales of Thurstone, Likert, and Silance, however, the pupils in this case were asked merely to check the items that coincided with their opinions.

The selection of the statements was undertaken in the following manner. Sixteen aspects of science were selected and five types of statements were written about each. These aspects of science are closely related to a child's experience such as thinking about things dealing with science, reading science books and magazines, science pictures, biography, mechanical apparatus, etc. The five types of statements were labelled A, B, C, D, and E as previously mentioned.

The interest scale was submitted to an outside and competent authority. A copy of the Science Interest Scale Form A (Revised) is shown under the heading, "Your Interest in Science."

Enquiry Three

A comparison between interest scores of Enquiry Two and the percentage of actively interested pupils found in Enquiry One.

Here the interest scores of the 210 Junior High School pupils tested in Enquiry Two were compared with the actively interested group found in Enquiry One.

Enquiry Four

A comparison between High School Students' interest in Science, as found in Enquiry Two, and High School students' achievement in Science as determined by report marks.

The science interest scores and the report marks of 112 High School students at the Technical Vocational High School were studied in this enquiry.

Enquiry Five

A study using Monroe's Standardized Silent Reading Test Revised to determine the reading ability of pupils tested in Enquiry Two and to compare the reading ability thus found with interest scores using correlations.

Since the science interest test developed for this thesis was a printed test and had to be read silently by the pupils, it was quite possible that a student severely handicapped in the field of silent reading might have difficulty reading the scale. As a check on this point all pupils taking the Science Interest Scale Form A (Revised) were given a short silent reading test.

Enquiry Six

A study using an original questionnaire—Science Interest Scale Form B—of the Thurstone-Chave-Likert type to measure interest in Science of Senior High School students and to compare the interest scores determined earlier in the school year using the Science Interest Scale Form A (Revised). In this same study, Science Interest Scale Form A (Revised) was compared with Science Interest Scale Form B.

3. Silance, E. B. and Remmers, H. H. "An Experimental Generalized Master Scale: A Scale to Measure Attitude Toward Any School Subject.", *Purdue University Studies in Higher Education*, XXXV (1934), 84-87.

Since boys score higher in science interest than girls, comparison of the scores of Form A with those of Form B can only be made when the scores are separated on the basis of sex. Enquiry six was resolved into four minor enquiries:

1. Determining the difference between the mean score for boys on the Form A (Revised) and the mean score for boys on the Form B; ($N = 77$; $N = 65$)
2. Determining the difference between the mean score for girls on the Form A (Revised) and the mean score for girls on the Form B; ($N = 61$; $N = 52$)
3. Constructing bar graphs for each grade and sex for both Form A Revised and Form B; ($N = 255$)
4. Determining the coefficient of correlation between Form A (Revised) and Form B for 103 pupils.

Conclusions of this investigation

Enquiry One

Of the group tested 20% of the pupils are actively interested in science at the Junior High School level.

Enquiry Two

Boys' interest in science remains reasonably constant through grades seven to eleven: girls' interest does not remain constant through the grades; boys' interest in science is greater than girls' interest and this difference is found to be statistically significant for the groups tested.

Form A (Revised)—1952

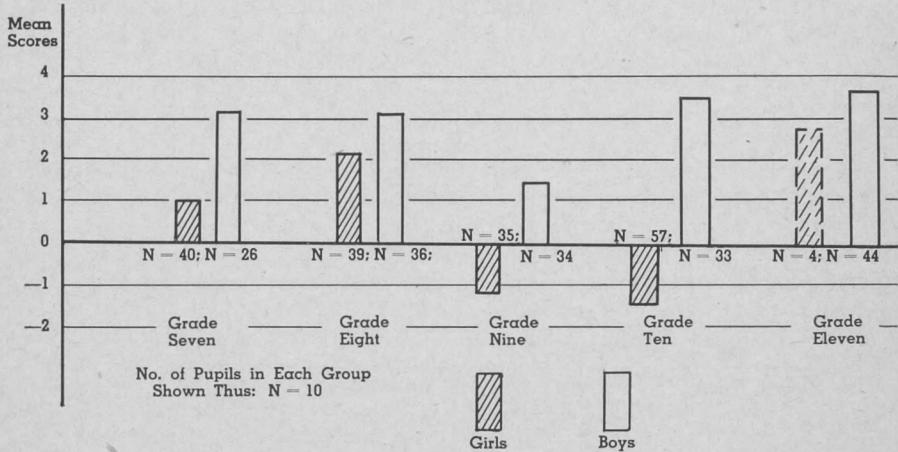


FIGURE I

Graphs Showing Mean Science Interest Scores for Boys and Girls for Each Grade
Science Interest Scale Form A (Revised)

348 Pupils

Enquiry Three

The percentage of pupils who are actively interested in science at the Junior High School level corresponds to the group who say they are highly interested in science.

Enquiry Four

The relationship between achievement and interest in science is small and varies with different groups. This observation is supported by a report in the Times Educational Supplement.⁴

Enquiry Five

The relationship between reading comprehension and science interest appears to be negligible, therefore reading ability is not a factor of science interest at this level.

Enquiry Six

The two forms of the Science Interest Scale developed for the purpose of this thesis appear to be very similar in their ability to measure scientific interest and there are reasons to believe that they are valid tests of science interest. For the two forms the coefficient of correlation $r_{AB} = 0.758$ and this value of r_{AB} is significant at the one percent level for the group tested. In this group those with most interest became more interested in science through the school year.

4. Times Educational Supplement, February 1945, "A Study in Interests", from a correspondent.

For Simplicity, Modern Usage and Authority

Every Student Should Have

THE WINSTON DICTIONARY

COLLEGE EDITION

This wonderful dictionary with over 100,000 references and definitions is designed to make "looking up words" less of a chore and more of a joy. The large, easy-to-read type and 3,000 illustrations give a clearer understanding of each word and the helpful inclusion of new words makes it more modern and useful.

Besides the full body material, The Winston Dictionary, College Edition, contains appendices such as Signs and Symbols, Tables of Weights, Measures and Standards; Foreign Words and Phrases; Names of Persons and Places; and 16 pages of world atlas printed in three colours.

Both in size and make-up and in ease of handling, this is a **real** dictionary. Order now through your book seller.

#3—Bound in durable black buckram, blue-edged	\$5.00
#4—Same as #3, with thumb index	\$6.00

THE JOHN C. WINSTON CO., Limited

TORONTO

ONT.

PROFESSOR B. R. WHITINGER



In September, 1954, the Faculty of Education was fortunate in securing the services of a new member of staff in the person of Ben Raleigh Whitinger. He came to replace Dr. George S. Maccia who had been in charge of the work in Science Education. Professor Whitinger brings us another fine enthusiastic scientist with exceptional gifts as a teacher, and a most attractive personality. We have been extremely fortunate in securing again a magnificent combination of scholarship, teaching ability and inspiring personality.

Mr. Whitinger is a product of Minnesota educational systems. His undergraduate work in education was carried out in the fields of science and music. He started his teaching career in 1934 and taught for twenty years in Minnesota. In addition to his teaching positions, Mr. Whitinger was very active in church choir directing, chorus conducting, orchestral playing, and instructing privately in instrumental music.

In 1946, Mr. Whitinger joined the staff of the college of education of the University of Minnesota as a supervising teacher in science. This position entailed the teaching of science methods to prospective teachers and directing the audio-visual department in the laboratory school. In 1948, he was appointed head of the laboratory school science department and in 1949, became head of the audio-visual department, which involved the teaching of Audio-visual courses.

In 1950, he assumed the responsibility for designing and planning the audio-visual department for the \$1,800,000 laboratory school, Peik Hall. Over a year was spent in planning this department which embodied all the facilities for audio-visual utilization, room design, sound systems, production of materials, photography, recording, and closed circuit television. No school anywhere has so complete a program for audio-visual education as found in this building.

Mr. Whitinger was appointed chairman of the science curriculum committee for the State Department of Education in Minnesota. The task of this committee was the complete revision of the secondary school courses of study in science. The chairman directed this work for two years and was appointed editor for the new curriculum guide. This bulletin is to be published shortly.

Work on his Ph.D. has been completed except the writing of the thesis for which the data has been collected. The title of the dissertation is "The Development of Understanding and the Nature of Experience in High School Biology". Major fields of work have been in curriculum and educational psychology.

During his entire career, Mr. Whitinger has always strived to maintain a teaching contract with children. In teacher training, he taught children as well as teachers.

Another successful part of his career was his marriage to Louise Nelson in 1937. The constant help and inspiration from Mrs. Whitinger and two sons, Jan (14), and Raleigh (10), have been a fine influence in his work.

ELEMENTARY GEOGRAPHY PROGRAMS IN CANADA AND UNITED STATES OF AMERICA

HILTON C. HARPER
M.Ed. Thesis Abstract

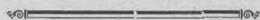
This thesis starts by defining Geography according to Authoritative sources in order to set up criteria for judging the various geography programs authorized by the provincial or state departments for Grade IV, V, VI. Each program or curriculum is then examined in the light of these criteria for its major objectives in geography; its content of courses; and the use of textbooks and other materials provided or recommended for teaching geography.

It was found that each of the Departments set forth fairly similar objectives. The objectives did not differ significantly from authoritative opinion.

The major differences between provinces appeared chiefly in the content of the courses. At the grade four level the majority of the programs stressed local geography. The program for grade five showed more differentiation in that a few departments such as Manitoba, California, Saskatchewan and Alberta devoted most of the time to History, while others such as Newfoundland, North Dakota and British Columbia provided a more strictly geographical program. At the grade six level the chief difference lay in the extent of regional geography included. Some programs are limited to Canada, while others include most of the Continents. Manitoba and most of the others have restricted the regional content to two or three continents.

The reference to textbooks and other materials recommended in the various curricula varied from practically nothing in Wisconsin to a very extensive listing in British Columbia.

The concluding chapter makes a number of suggestions for the re-organization of the geography Curriculum at the Elementary level in Manitoba, the program of which occupies an average position only when compared with other departments.



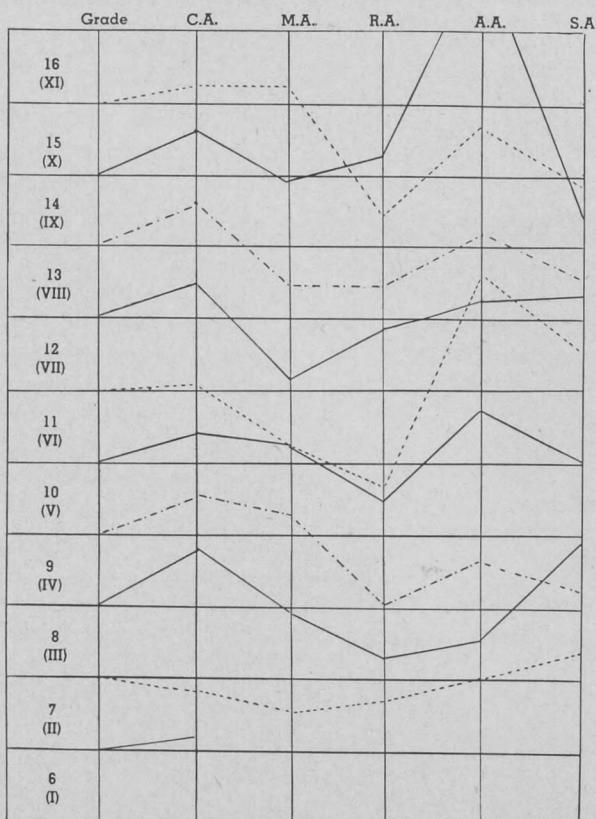
PUPIL ACHIEVEMENT IN RICHARD SCHOOL, SOMERSET, MANITOBA, 1952-1953

by SISTER MARY CORINNE
M.Ed. Thesis Abstract

In September, 1952, the Sisters of the Holy Names of Jesus and Mary undertook the direction of Richard School in Somerset, Manitoba. At the outset, this entire change of staff meant that an understanding of the pupils' background, and of their strong and weak points was lacking. Such a situation, necessitating a close examination of the students, accounts for this study.

The enrollment of the school for the year 1952-1953, excluding the pupils of grade eleven, who were neither tested nor studied, was 126. As a preliminary step, a suitable testing programme was conducted toward the end of the scholastic year. Intelligence tests, and standardized tests in reading, spelling, and arithmetic were given to the pupils of grades two to ten inclusive. The twenty-one pupils of grade one were studied in a rather subjective manner.

The tests results were tabulated, and range and medians for each grade were found. Profiles were made for those pupils who seemed to require closer study. These profiles were examined in the light of pupil behavior and teacher observations of the child and his home. Again, with the help of what had been learned the teacher endeavoured to determine in each case, the best means to employ in order to enable the student to derive a maximum benefit from his school days. Next, a study was made to see how the children in each grade grouped for instruction in reading, spelling and arithmetic, and recommendations were made in each case.



Medians obtained in the testing programme carried out in Richard School, Somerset, Manitoba, June, 1953.

Following this, a study of the whole school as shown by testing was made. Medians and range for the whole school were then tabulated, and graphs made. The accompanying figure gives the medians obtained by the different grades.

In a well graded school one would expect the grade medians to be fairly horizontal and parallel lines. Such is not the case in Richard School. The median spelling age for grade three is nearly six months above the median spelling age for grade four. Grades five and six have the same median for mental age. In general, the median for reading is below the norm, while that for arithmetic is above. The range in each grade studied showed a picture that was not very satisfactory. There seemed to be a fairly large number of retarded children in certain classes. Most of these children seem to be retarded because of a reading difficulty. This trouble may be due to the fact that most of them are of non-English parentage.

The writer feels that there is a field for study, in Manitoba, to discover better methods of teaching English to non-English speaking children in rural parts where the school population belongs to the same ethnic group, and where a strong desire is evident on the part of the adults to conserve their mother tongue.

VISUAL AIDS

SOUND PROJECTORS:

Bell & Howell, Kodak, Victor, Ampro, Movie Mite

SLIDE PROJECTORS:

Viewlex, S.V.E., T.D.C., American Optical, Aldis.

OPAQUE PROJECTORS:

Bessler-Vu-Lite, Taylor Spotlight, American Optical.

PROJECTION SCREENS:

Radiant, Da-Lite.

TAPE RECORDERS:

Revere, Wilcox-Gay, Webcor, Ekotape, Ampro.



For a Demonstration without obligation in your own classroom
call or write

TAYLORS PHOTO SUPPLY

Phone 92-8428

459 Portage Ave. (at Colony)

Winnipeg, Man.

TEACHER EVALUATION

by R. GRAY

M.Ed. Thesis Abstract

The purpose of this study was to seek criteria, methods and devices which would assess a teacher's abilities in the school and in the community. To do this it was necessary first to review the published material on past evaluation practices of teachers in Canada, the United States and Great Britain. At the same time present practices (1953) in teacher evaluation were inquired into by means of an original questionnaire sent to cities and teacher training colleges in these three countries.

Reading revealed that authorities favoured teacher evaluation when carried out properly. One group of authorities felt that, since no universal agreement existed on a standard procedure for teacher evaluation, a cumulative personnel file for each teacher would be the best means of complete evaluation.

Four qualities were considered more important than all the others by those replying to the questionnaire. These were: Attitude toward Work, Personality, Spirit of the Classroom, and Stimulation of Initiative. When rankings of these criteria made by cities and teacher training colleges were compared it was found that the two groups agreed in eight of the first ten criteria. Besides the four already mentioned other criteria agreed on were: Knowledge of the Subject, Teaching Methods, Pupil's Interest and Sympathetic Contact.

Replies also emphasized the fact that teachers are being evaluated now by educational centres for their work outside the classroom as well as in it.

From the literature and the questionnaire study the following course of action when evaluating teachers is suggested:

1. Teachers should be evaluated in the following areas by these means:
 - (a) **Techniques or Means of Instruction** can be rated by using check lists, certain commercial rating scales, observation in the classroom, and the use of various means for the ascertaining of pupil achievement.
 - (b) **Knowledge of the Subject** can be appraised by observation in the classroom if it is carried out by a person who knows the subject well and is trained to observe and assess teaching.
 - (c) **Professional Interest and Professional Attitude** can be evaluated by keeping on a central file the records of professional courses taken, along with records of positions held on teacher organizations. The esteem of fellow teachers and co-workers can also be estimated by rating officers.
 - (d) **Relations with the Community** can be estimated by keeping a record on file of activities carried out by the teacher in the community and of positions of responsibility held in the community.

- (e) **Personal Qualities** (health, etc.) can be assessed by physical examinations, interviews, conferences, and by keeping on file the results of certain fairly reliable tests of intelligence, personality, leadership, etc.
- (f) **Relations with Pupils** can be evaluated by a qualified observer in the classroom using scales which help them assess classroom atmosphere.

2. Teachers should be evaluated by more than one adequately trained person.
3. If evaluation locates certain weaknesses in a teacher, a remedial programme should be instigated to cure these weak points.
4. Where a school system wishes to produce a device of its own for the partial evaluation of its teachers, both teachers and administrators should work together on its construction so that it will fit the needs of the system.
5. Evaluation of teachers should be a continuous process and not an intermittent one. Records of the evaluations of each teacher should be kept in a file available to administrative officers.

L U M B E R

Not so many years ago a Lumber Yard was looked on as a place where you could buy lumber only. Now you may purchase Plywood, Insulation, Builders Hardware, Hardwood Flooring, Arborite, Interior Trim in Birch, Mahogany or B.C. Fir. With the advent of "Do it yourself" trend, a lumber yard is headquarters for everything you need to make anything necessary for home maintenance.

In addition to the foregoing, we now supply plans and blue prints for homes, free advice as to the best building products to use. Also information on N.H.A. loans.

A Complete Building Service

McDIARMID BROTHERS LIMITED

SASH, DOORS AND INTERIOR FINISH

600 PEMBINA HIGHWAY

Phone 42-2711

Winnipeg 9

Phone 42-2711

PLANNING A FUNCTIONAL JUNIOR HIGH SCHOOL

by J. M. SCURFIELD
M.Ed. Thesis Abstract

The Problem.

The Winnipeg School Board for 1954 was faced with the problem of providing accommodation for the enormously increased school population presently in the elementary school but soon to overflow into the secondary schools. The School Board had to commence at once a building programme to meet this need. To date there had not been built in Winnipeg a school specially designed for junior high school purposes.

The purpose of this thesis is to present details for the building and equipping of a truly functional school plant to serve the needs of junior high school children. The planning has been based on the philosophy of education for Manitoba and on the special purposes and functions of the Junior High School.

The Method.

A committee of teachers and junior high school principals, investigated plans for building and equipping a functional junior high school plant. Visits were made to schools in Manitoba and U.S.A. Questionnaires were submitted to the junior high school principals of Winnipeg, who were asked to discuss the questions and suggestions given with their teachers.

The author also made a careful analysis of the published material in such periodicals as *School Progress*, *The School Executive*, *The Nation's Schools*, *The American School Board Journal*, *Progressive Architecture*, and *Architectural Forum*, as well as the studies of such recognized authorities on the subject as Gruhn and Douglass, Perkins and Cocking, W. W. Caudill, D. L. Harmon, and N. L. Englehardt.

Main Recommendations.

This thesis contains sixteen figures and designs for the instructional areas and auxiliary areas and some equipment for junior high school. Due consideration was given to the Winnipeg climate and the need for reasonable economy in planning a school plant for the Winnipeg situation. A functional junior high school plant must provide:

1. More space than in the normal school to implement a fully active program.
2. More flexibility of space usage and furniture.
3. More storage facilities.
4. Proper facilities for visual aids in every room.
5. Modern lighting, ventilation and acoustics.
6. Better administrative facilities.

CRITERIA FOR A GRADE XII CHEMISTRY LABORATORY MANUAL

by FRANK HARDER
M.Ed. Thesis Abstract

The author first surveyed the considered opinions of past educators. The survey embraced the broad aims of general education and passed through ever narrowing fields: secondary school education, science education, chemistry education, and finally laboratory education in chemistry.

Whereas elementary education emphasizes knowledge, skills, and habits, the secondary school shifts the emphasis towards attitudes. Science, including chemistry, contributes to this shift of emphasis by its stress on the scientific attitude. While factual knowledge, skills, and habits involve little thinking, and that little mostly of a concrete nature, attitudes and ideals demand a great deal of thought and that mostly of an abstract nature.

The survey indicates that the educational process aims towards more and more complex abstract thinking and that chemistry, among high school subjects, is singularly suited to the encouragement of this. It can begin a lesson with the presentation and manipulation of actual raw data which lend themselves to generalization at the high school level. The survey shows that there has been some confusion concerning the function of chemistry education (i.e. its function to encourage abstract thought). Even some of the reports of the highly respected American National Society for the Study of Education placed equal emphasis on acquiring laboratory skills as on developing the process of abstract thinking.

The author has undertaken to state the aims of chemistry education so that they represent three increasingly abstract intellectual levels:

1. Chemistry education aims at an understanding of the composition of matter and the changes it undergoes; and the manner in which this knowledge aids man in the control of his environment.
2. Chemistry education reveals the organization in the changes of the composition of matter.
3. Chemistry education arouses an appreciation of the elusive nature of truth and cause, and an appreciation of the power of directed imagination.

At any educational level all three aims are involved, there is only a shift of emphasis. While elementary science lessons would involve the first aim and would consist largely of exploratory general science, secondary science lessons would involve the second aim, and to a limited extent the third aim, both of which lay heavier demands on the intellectual processes.

Laboratory chemistry must in its spirit conform to the basic aims of all chemistry education. The function of the laboratory appears to be two-fold: (a) it presents the actual raw data for manipulation by the scientific method (b) it broadens the sensory impact of the learning situation. It is question-

able whether any other function merits the high cost of laboratory instruction. In a high school laboratory, where chemistry is taught for its cultural connotations more than for its preparatory value for the skilled crafts, laboratory skills are of secondary importance.

The study ends with a preparation of a manual based on the criteria developed. This manual is undergoing its second year of trial and revision.



The WILLSON STATIONERY —COMPANY— LIMITED

PRINTERS AND MANUFACTURING STATIONERS

Gifts of Remembrance

STUDENTS' SUPPLIES

WINNIPEG VICTORIA VANCOUVER EDMONTON CALGARY
REGINA SASKATOON MOOSE JAW BRANDON FORT WILLIAM
PORT ARTHUR

SOME FACTORS AFFECTING GRADE XI CHEMISTRY

by CLAUDE A. JOYCE
M.Ed. Thesis Abstract

The purpose of this study was to examine some factors that might contribute to a pupil's attainment in Grade XI chemistry. The contributing factors examined by tests were I.Q. of the pupil, his ability in mathematics, in reading, in abstract reasoning; his carry over in chemistry from previous grades, his application in fulfilling work assignments, and the effect of the textbook itself. The hypothesis at the time was that all these would prove to be positive contributing factors to achievement in Grade XI chemistry. The measure of a pupil's attainment was taken as his mark in the June Department of Education examination of that subject.

When the tests and measurements were completed, they were then correlated with the pupil's mark in his Grade XI June chemistry result. These correlations worked out as follows:

Abstract reasoning	.18
Reading test	.34
I.Q.	.47
Elementary contributory science	.51
Mathematical ability	.53
Work index	.60

Applying the empirical classification of correlation coefficients as made by H. O. Rugg, we find that the effect of Abstract Reasoning ability on success in chemistry to be "negligent or indifferent"; that of reading ability to be "present but low"; the effect of I.Q., elementary contributory science, and mathematical ability to be "markedly present"; and the performance in work assignments the only factor having a rating as "high". These results were checked by the application of the null hypothesis, and all except the abstract reasoning result were found to be significant.

The outstanding result of the work was the high correlation between a pupil's work index and his mark in chemistry. This would appear to indicate that in spite of his handicap in other abilities, the ability of a pupil to work to the limit of his capacity is the deciding factor in achievement in Grade XII chemistry so far as Departmental Examinations are concerned.

THE RELIABILITY AND ITEM VALIDITY OF DEPARTMENTAL EXAMINATIONS

by I. J. LEHMANN

M.Ed. Thesis Abstract

Purpose of the Study

Departmental examinations are administered to students of the eleventh and twelfth grades in the Province of Manitoba to determine junior and senior matriculation standing respectively. The examination results are used as the basis for admission to the University of Manitoba.

The purpose of this study is to examine certain of these examinations in order to test the hypothesis that they possess a degree of non-validity and unreliability which may result in considerable injustice being done to students who are seeking matriculation standing.

Sources of information

The results of the examinations that were written by students in the eleventh and twelfth grades in the Province of Manitoba in June and August 1953, were obtained from the Department of Education. In the majority of cases, the actual examination booklets were used. Where this was not possible, the Registrar's records were made available to the investigator.

Thirty-two Grade XI and Grade XII, June and August, 1953, Manitoba Departmental examinations were studied. Of the thirty-two examinations, complete populations were used in the analysis except in eight examinations where a random sample was employed.

In all, 26,180 examination papers were used. Of these, 5465 papers were examined in detail.

Technique of the Investigation

Since the departmental matriculation examinations consist of essay examinations as well as a combination of essay and objective items, it was necessary to use the following methods to determine the reliability and item validity of these examinations.

(Validity, as used in this study refers to the extent to which the test measures what it is designed or purports to measure. Reliability refers to the degree of consistency of the examination.)

1. The item validity of the objective portion of the examinations was determined by using the extreme criterion groups method (upper and lower twenty-seven percent) recommended by Thorndike, and by using

the Flanagan tables of the Pearson Product-Moment Coefficient of Correlation to determine the validity of each item.

2. The reliability of the objective portions was determined by the Hoyt modification of the Kuder-Richardson formula.

3. The validity and reliability of the examinations was determined by correlating the June and August marks of students who wrote both examinations.

4. The reliability of the examinations containing objective and essay portions was determined by correlating the marks obtained on each portion.

5. The reliability of the essay portions was determined by the method of "split-halves" stepped up by the Spearman-Brown Prophecy formula.

Findings

1. The objective portions of the examinations analysed were valid. In only the Grade XII August Biology does the proportion of non-valid items to valid items exceed five percent. The mean item validity and standard deviation are as follows:

	Mean	S.D.
XI June Biology	.52	.10
XI August Biology	.62	.20
XI August Physics	.38	.13
XI June Chemistry	.55	.15
XI August Chemistry	.48	.12
XII June Biology	.46	.31
XII August Biology	.58	.30
XII August Chemistry	.44	.14
XII August Physics	.39	.19

2. The objective portions of the nine examinations analysed were found to be unreliable. This was due to one or more of the following factors: inconsistency of marking, the brevity of the objective portions, and carelessness in item construction. The reliabilities of these examinations range from .502—.887.

3. The reliabilities of the essay portions of the examinations analysed range from .216—.91. The essay portions of the examinations did not possess a reliability high enough to make them accurate measuring instruments, and may be considered as being unreliable.

4. The validity of the essay examinations, as determined by correlating the marks of the June and August examinations of students who wrote both examinations, show a range of .267—.826 with a mean correlation of .43. The validity of the ten examinations studied show that they are open to serious question.

FACTORS AFFECTING SUCCESS IN TEACHING TYPING

by S. FUTCH

M.Ed. Thesis Abstract

Purpose of the Study:

This study attempted to appraise the qualifications and methods of typing teachers as well as the equipment used in the typing classrooms in the high schools of Manitoba.

Method of Attack:

The data on which this study is based were secured by sending out questionnaires to 93 typing teachers throughout the province.

To evaluate the findings, the latest books on typing were used as criteria.

The Questionnaire:

A total of 90 questions were asked on the questionnaire. These questions were categorized into five main groups as follows: Equipment, Qualifications of Teacher, Methods of Teaching, Testing, and Miscellaneous. Most questions were not of the simple "yes" or "no" type and consequently the same question received many different answers.

A response of 77.8 per cent was received to the questionnaire.

Findings:

The study revealed several inadequacies in the typing course offered in the high schools of Manitoba:

- (a) **Qualifications of Teachers:** One-quarter of the typing teachers do not possess degrees. One-third have had no business experience of any kind and over one-third of the teachers have not had any training in commercial methods.
- (b) **Teaching Methods:** In the teaching of subject matter too many teachers still adhere to traditional methods of teaching typing which research has proved to be unsound.
- (c) **Grading:** More than half the teachers admitted that they were not satisfied with their own grading system.
- (d) **Equipment:** The equipment in classrooms was found to be rather unsatisfactory.

EDUCATION 1 STUDENTS 1954-55

Abercrombie, J.	Fryer, R.	Medved, L.
Allison, W. P.	Genik, A.	Mayes, A.
Arnott, M. (Mrs.)	Gopaul, M. (Mrs.)	Milton, J.
Badali, P.	Gourbil, F.	Muir, J.
Barnes, W.	Guenther, L.	Murray, T.
Beaudin, C.	Harris, J.	Mutch, D.
Bergeron, J.	Hill, D.	Myros, M.
Besselt, L. I.	Hodgson, D.	McCullough, L.
Breckman, K.	Horkoff, A.	McMaster, J.
Breckman, R. (Mrs.)	Irvine, J.	Nicholson, G.
Brook, J.	Israel, H.	Olson, A.
Brown, A. (Mrs.)	Johnson, M.	Patterson, L.
Carignan, (Sr. Francoise)	Kay, M.	Peterson, J.
Casey, S. (Rev.)	Kosjar, L.	Daly, B. (Mrs.)
Cochrane, P.	Kowbel, J.	Reimer, L.
Dahlgren, F.	Kristjanson, D.	Riesen, I.
Dawson, M.	Labossiere, (Sr. Jacques)	Rosenstock, G.
Derenchuk, P.	Labossiere, M.	Schwartz, S.
Derewianko, M.	Litke, L.	Scott, J.
Desrosiers, M.	Lisowsky, N.	Selver, A.
Didkowski, S.	Loeppky, B.	Senoff, G.
Dolinsky, V.	Lubosch, I.	Sigurjonsson, K.
Doroschuk, M.	Lye, D.	Skinner, R.
Doupe, J. (Mrs.)	Mackenzie, G.	Solnes, J. (Mrs.)
Dram, B.	Malaher, P.	Smith, N.
Drosdowech, P.	Malcolm, K.	Townsend, M.
Duff, R.	Malian, E.	Trupp, L.
Duncan, R.	Mandell, B.	Ward, A.
Finlay, D.	Martens, B.	Webber, V.
Friesen, D.	Martens, F.	

LABORATORY EQUIPMENT

CHEMICALS AND LABORATORY FURNITURE FOR SCHOOLS AND COLLEGES

MANY FREE PUBLICATIONS AND CLASSROOM AIDS

PLEASE WRITE TO:

FISHER SCIENTIFIC CO. LTD.

245 CARLAW AVE.

TORONTO 8, ONT.

AN EVALUATION OF A GROUPING TECHNIQUE DESIGNED TO FACILITATE THE TEACHING OF ENGLISH AND MATHEMATICS

by MARY BREWSTER PERFECT

A Term Paper submitted for course 213 in the B.Ed. Program

The Problem

An apparently successful, and yet somewhat unique device, used in a large Winnipeg junior high school to facilitate the teaching of English and Mathematics, is the subject of this evaluation. A concerted effort on the part of both administrators and teachers to make provision for a wide range of abilities and interests among their students produced a "sectioning" technique. It is, briefly, a homogeneous grouping for two major subjects within the present heterogeneous grouping of classes which still serve as divisions within the grade for all other purposes of instruction and administration.

The Method

The philosophical and psychological bases for the plan, the design of the technique itself, and the appraisals of it by the teachers and administrators involved in its implementation were examined and studied analytically.

Philosophical and Psychological Bases

1. Each heterogeneous group provides for natural social development because any class, which preserves its class identity for more than half its school time, develops group consciousness.
2. There is no permanently labelled "bright" or "slow" class within the grade. Students are grouped for some purposes only.
3. No group is, however, retarded in English or Mathematics by a laggard group, and the laggards do not fade out of sight in contrast with the others.
4. Each section is composed of students who are allowed to do the things they are capable of doing.

5. Every junior high student has need for mastery, for status, for satisfactory achievement in school. Disciplinary problems often develop from the frustration of these needs if academic tasks are not suited to abilities. Outward aggression—one field in which a weaker student can excel—tends to gain him desired attention.

The Design of the "Sectioning" Technique

In a grade containing one hundred and forty-five students, four heterogeneous classes, with presumably a wide range of abilities in each, were set up. This was followed by the establishment of four learning levels or "sections" of approximately forty-four, thirty-eight, thirty-four, and twenty-eight students for both English and Mathematics. Using the "Dominion Tests of Learning Capacity" and the "Iowa Silent Reading Test," the administrators then ranked and grouped their students rather subjectively. Taken into consideration were each child's general intelligence level and his median reading grade equivalent (for English) and the raw scores of the subtests on reasoning (for Mathematics). Students were provided with a stimulus for their best endeavour since they under-

stand that they may be transferred from one section to another as a result of their achievements on the Christmas examinations. Since all sections of either subject are taught during the same period, four teachers of each subject are involved.

The Appraisal of the Plan

From the students', teachers', and administrators' points of view, this grouping technique appears to be acceptable, successful, and worthwhile. Through observation, the administrators have been led to believe that students accept sectioning with a minimum of emotional upset.

To the teacher, grouping gives greater success in teaching. An economy of procedure is effected with the result that there is probably better provisions for more concentrated effort on the part of both teachers and students. The enrichment of the content of the courses for talented and superior students is an alternative to too rapid advancement by grades; the simplification of course material and diversification of methods of instruction to suit the abilities of the weaker students is possible. Standards of examination may be modified to conform to the abilities and efforts of the students concerned. A greater level of achievement in English and Mathematics, made possible by ability grouping in each, probably transfers to all other subjects directly or indirectly dependent upon them.

The administrators, who designed and supervise the plan, face the problems involved in obtaining suitable personnel to carry it out, and in time-tabling the remainder of the program for the grade around the English and Mathematics periods. Credit is given to the technique for the tremendous reduction in the number of discipline cases. Frequent teacher conferences and special staff team-work are basic to the effective functioning of the program.

It would seem reasonable to conclude that this method of grouping, and the devices used for that purpose, form a sound technique for dealing with junior high students' individual differences. The plan would appear to be particularly advantageous for the two most baffling groups in the system—the non-academic and the brilliant students. A dynamic, and perhaps the most salient feature of the program seems to be its implicit challenge to the student to improve. Possibly grouping for other subjects might increase still further the Educational benefits of the English and Mathematics grouping.

FACULTY COUNCIL – EDUCATION 1 1954-55

Senior Stick	Thom Murray
Lady Stick	Dorothy Kristjanson
Secretary	Donaldca Finlay
Treasurer	Gebrehiwet Mengesha
Athletics	Patricia Malcher
Debating	John Derewianko
Drama	Walter Barnes
Social	Lois Reimer
U.M.S.U. Representative	Kay Sigurjonsson
Brown and Gold Rep.	Jacquie Milton
	Merle Johnson
	Rena Beaudin
	Leona Kosjar

DATE DUE SLIP

OF

IPUS

202	Psychology of Adolescence		
206	Elementary Education		
213	The Teaching of Secondary School English		
228	The Teaching of Secondary School Mathematics		Workshop
232	Organization of the Secondary School Curriculum		
707	The Psychology of Learning		
711	Personnel Service and Vocational Guidance in the Secondary Schools		
717	Research Problems in the Teaching of Science		
723	Education of Secondary School Girls		

208	The Psychology of Learning		
210	Silent and Remedial Reading		
238	Adult Education		
704	History of Canadian Education		
722	Research Problems in Education		

ES

201	Advanced Education		Shoal Lake
230	Adult Education		Brandon
203	Methodology of Education		
205	Adult Education	0	Dalhousie
234	Documentary Research		Flin Flon
206	Elementary Educational Statistics		Winkler
233	Principles of Education		Pilot Mound

WINTER SESSION 1956, WINNIPEG

203	Mental Health	
214	The Teaching of Secondary School History	
227	The Teaching of Music	
702	Philosophy of Education	
724	Psychology of Adolescence	

TEXTBOOKS AND SUPPLIES

The Book Department is operated by the University of Manitoba for the convenience of all students taking courses at the University or at the affiliated colleges. All required textbooks are regularly kept in stock.

Stationery, Loose-Leaf Note Books and General
Supplies are also on sale.

PRICES — THE VERY LOWEST POSSIBLE



MAIL ORDERS GIVEN PROMPT ATTENTION



THE UNIVERSITY OF MANITOBA BOOK DEPARTMENT

THREE STORES

Broadway Building	-	-	-	-	200 Memorial Boulevard	
Bus Terminal	-	-	-	-	-	Fort Garry
Medical Building	-	-	-	-	-	Bannatyne Avenue

University of Alberta Library



0 1620 0210 2836

IT'S THAT
FEELING
OF
SECURITY
THEY LIKE

A1432

One of the big, important reasons for Eaton's popularity throughout eighty years of business is that Eaton customers shop with complete confidence.

They know that behind every purchase they make — large or small, important or trifling — there stands the reassuring Eaton Guarantee of:

“Goods Satisfactory
or Money Refunded”



THE T. EATON CO. LIMITED
CANADA